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MOTOR AGE

The National Show and Its Promotion

"IT IS NECESSARY TO TAKE INTO CONSIDERATION THE WISHES AND REQUIREMENTS OF EXHIBITORS, ATTENDANTS, DEALERS, THE PUBLIC, THE PRESS AND THE CITY AUTHORITIES"

By Samuel A. Miles

The general manager of the National Association of Licensed Automobile Manufacturers has been the promoter of the Chicago show since its inception. Herewith he tells of the trials and tribulations of the promoter, and what a great undertaking it is

THE first thing requisite to the conduct of a national show, of such magnitude as that held annually at New York or Chicago, is the sanction, goodwill and support of the National Association Automobile Manufacturers, an organization which embraces over eighty of the leading makers and attends to all those things which are for the best interests of the industry, and of the Motor and Accessories Manufacturers, with its 300 and more members, without the exhibits of whom no show can properly be called national or present a semblance of national characteristics.

The conduct of such a show as has been held annually at Chicago for the last 12 years involves dealing and entering into contracts with between 400 and 500 exhibitors; the polite but necessary refusal of the exhibits of half as many more; the consideration of scores of designs and proposals from contractors; correspondence

"MEN WHO DO NOT KNOW IMAGINE THE PUBLIC ATTENDANCE MAKES A SHOW PROFITABLE"

with 3,000 attendants and twice as many dealers; the expenditure of approximately $100,000 in such a way as shall yield the best results to the industry; and last, but by no means least, the consideration of those people who, by reason of failure to apply on time, have failed to obtain space and cannot or will not be convinced that there is nothing remaining.

It is necessary to take into consideration the wishes and requirements of exhibitors, attendants, dealers, the public, the press, and, one of the most important of all, the city authorities. Each class is necessary to complete success.

The first and most important factor is the exhibitor. He makes the show possible. Of course, as matters now stand, he is anxious to get into the show and will so continue until improper management or lack of public demand makes it undesirable to hold shows; but in the mean-

"TO THE SHOW MANAGER WHO SEEKS TO EVADE RESPONSIBILITY AND THE LAWS MADE FOR SAFEGUARDING THE COMMUNITY INSPECTORS ARE NUISANCES"

time he is the all-important factor in the affair. Men who do not know imagine the public attendance makes a show profitable. They estimate the attendance at about three times the actual number and figures on the thousands of dollars that must be pouring into the box office. The fact is that without the contribution of the exhibitor, in the form of space rental and the purchase of invitation tickets no show in the country could live. The calls upon the treasuries of the makers, for show purposes, is severe and the wise manager takes all possible precautions to see that they are made no greater than is absolutely necessary.

Show by Trade and for Trade

Many a score of times has the question been asked: "Why, in view of the great demand for space, does the Chicago show sell it and provide all the necessary equipment for 90 cents a square foot, while other shows, of other industries, charge twice as much, and often more than that, for space rental alone?"

There are many answers. The Chicago show is run under the auspices of the N. A. A. M.—practically by the trade, for the trade. The object of the association is to provide the best show possible at the lowest cost and at the same time, secure a sufficient profit to enable it to carry on its work,—for practically the entire income of the association for the last 8 years has been derived from the Chicago show. The fact that there is a great demand and that all the space will be sold furnishes the necessary assurance of sufficient income. The association takes the ground that a reasonable price, which is sufficient, satisfies and pleases the trade and that permanent success is preferable to immediate extortion.

To get the exhibitor and keep him year after year it is necessary to provide space suited, as to quantity, location and price to the character of his exhibit, the length of his purse and the dignity of the position he holds in the trade; to furnish comfortable and attractive surroundings; to pay attention to his needs and those of his attendants in many details and, above all, to give him sufficient public attendance to assure him that his exhibit has been or will be profitable. He may be cranky,—as he occasionally is; his employes may know more about running a show than do the people who have given the problem years of study—as they frequently do; some of his men may try to impose on the management in many ways, complain of instructions given by electrical inspectors, firemen, building inspectors and other city officials or of the enforcement of the rules by the show's employes; or that the band is too loud or too soft; or that there is too much or too little heat and light, or a score of things, reasonable and unreasonable. But in spite of all the exhibitor is it.

"EVERY EXHIBITOR FELT THE DISSATISFACTION"

First Days of Show

These things generally happen, if they happen at all, during the first 2 days of the show, when everyone is excited over the preparation of his exhibit and ignorant of many of the plans of the management. After that everyone is smiling and happy. Most of the complaints come from men who have not previously exhibited and who, consequently, lack experience. Complaints practically never come from the veteran. But no matter whether the complaint be reasonable or unreasonable, it must be met, investigated and, in case of necessity, corrected. The exhibitor must be kept in good humor, not only as a matter of justice, but because, leaving the participation of any one or any dozen concerns out of the question, the sentiment prevailing among the exhibitors as a whole has much to do with public sentiment, public attendance and buying.

One need go no further to prove this than to picture, in one's mind's eye, one group of pleased, bustling and enthusiastic men who will declare it a "great show" and another group of kill-joys of the opposite frame of mind. Assuredly the public unconsciously absorbs the prevailing sentiment. If any further proof be wanting one may think back to the blue days of the New York show of 1907, panic year. Madison Square garden never had been filled, within the writer's recollection, by such a collection of grouches. Every exhibitor felt the dissatisfaction and communicated it to the public. Not so in Chicago. Between the shows the riot act was read to the show attendants. They came to Chicago prepared to smile whether there was any reason or not. They were instructed to enthuse, to know nothing about hard times. They followed instructions and the result was the establishment of a new atmosphere. The show passed successfully and little or no inkling reached the public that the industry was feeling the pinch.

Importance of Dealer

In days gone by it would have been necessary, in order to be truthful, to say that the man next in importance to the exhibitor was the dealer. Perhaps he is, even now, though the course of event has changed greatly. Agencies are not placed at shows to the same extent as they once were. But the dealer must be there. To be successful the management must interest him sufficiently to draw him hundreds of miles and induce him to bring along prospective buyers. The dealer is entitled

to attention in the form of admissions and so forth, but the management must exercise precautions to prevent imposition at the hands of persons who, by false representations, seek to obtain privileges to which they are not entitled.

And then the public. There is little or no trouble with the people,—when you get them. They pay their money like gentlemen,—or ladies,—admire the decorations, examine the cars, criticise the fashionable millinery, occasionally place an order, absorb a lot of enthusiasm,—which is one of the greatest advantages of the shows,—and go their way rejoicing without a thought of the labor, caution and expense involved in the preparation of the exhibition they have attended.

Classes to Be Dealt With

Other classes cannot be dealt with in detail. They are the politician, the walking delegate, the policeman on every beat within 10 miles, the grafting public employe, and, among the legitimate, necessary and painstaking class, the inspectors employed by various departments of the city government.

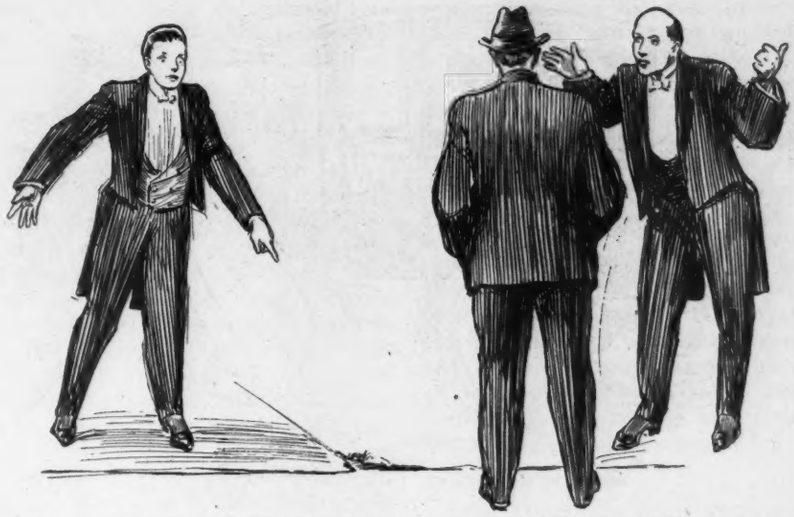
To the show manager who seeks to evade responsibility and the laws made by the community for the safeguarding of the public, the inspectors are nuisances, to be feared and hated. To the man who appreciates the responsibility he takes upon himself when he calls from 10,000 to 20,000 citizens together into one small area, they are welcome assistants, lending the benefit of their experience and correcting mistakes which might have serious and even fatal results.

The Coliseum has frequently contained as many as 20,000 people. It is one of the safest buildings in the world. Its sides are practically all doors. But an alarm of fire would, unless the necessary provision had been taken for the public's safety, lead to such a scramble as would mean certain death to many, even though there were no sign of fire within a mile.

Caring for the Visitors

It will be seen, then, that the show promoter has about 500 exhibitors and prospective exhibits to deal with; that he must provide for the possibility of entertaining not fewer than 5,000 dealers; that he may expect an average attendance of about 30,000 people a day and that it must all be done without fuss, congestion, dissatisfaction or danger. It may be assumed that not one man in a thousand ever thought of the problem of show promotion in that light.

How is it done? Easily enough. Hire a building—large enough; lay out a diagram with spaces all equally desirable; sell the spaces; place your advertising; sell your tickets—and there you are. Of course, as incidental achievements, you must carry on 6 months' correspondence, arrange for and distribute a multitude of tickets, attend to insurance, obtain a license, satisfy the city authorities that you are responsible and that the show will be moral and safe, see that provision is made for a thousand public comforts, attend to the advertising, submit to interviews by canvassers for every form of advertising device known, prepare a mile or so of ghost stories for use by the press agent, devise a scheme of decoration and equipment which takes from 4 to 6 months to carry out, make the signs, provide furniture, hire police, give every exhibitor exactly the space he wants, give him and his friends all the admissions they want, be sure that your building and everything in it is fireproof, find a studio or other establishment large enough to carry out your scheme of decoration, make a daily inspection of the work as it progresses,—if you expect it to be finished in time,—hire labor of every possible kind, see that the exhibitors have electricity on 10 minutes' notice and ice water without any notice at all, provide elevators to carry things which are larger than were ever before carried on elevators, run the gauntlet of peanut vendors, makers of flags, souvenirs, toys, flowers, candy, advertising novelties, all desirous of obtaining the privileges of the exhibition—and tickets. These are only a few of the items which readily come to mind. There is no limit to them. They are innumerable.



"HE MAY BE CRANKY, HIS EMPLOYES MAY KNOW MORE ABOUT RUNNING A SHOW THAN DO THE PEOPLE WHO HAVE GIVEN THE PROBLEM YEARS OF STUDY"

"THEY WERE INSTRUCTED TO ENTHUSE"

Manager in Great Demand

If someone in the building smokes, the manager is held responsible; if a visiting chauffeur is arrested the manager must go and bail him out; if an exhibitor's sign does not hang straight, the manager must go and inspect it personally; he must submit to being interviewed and made a professional beauty or a candidate for the rogues' gallery by the photographers; and, taken all in all, he gets a heap of fun out of it.

Consideration of the safety of the public is one of the first duties of a show manager. On general principles one would imagine—and correctly—that the city authorities would take care of this item. But in a building like the Coliseum, where one entertainment follows another in quick succession, each with its own scheme of equipment, each with scores and in some cases, hundreds of exhibitors, it would be an impossibility that absolute safety should be insured unless there were coöperation between the officials who regulate such things and the show management.

The Coliseum is, in all probability, the safest building of its size in America. It has so many doors that it could be emp-

"ANOTHER YEAR A CARELESS OR IGNORANT PERSON STARTED AN ELECTRIC CAR WHICH RAN ACROSS THE AISLE AND INTO THE OPPOSITE DIRECTION"

tied, no matter how crowded it might be, in a few moments. The floor is concrete; the roof concrete; the girders steel. There is nothing in the building itself to burn except the gallery floor. Every door is ready to open and an attendant is on duty at each of them every minute of the day. Building inspectors pass on the plans of any radical change; electrical inspectors watch every move of the electrical equipment; foremen patrol the building, upstairs and downstairs, constantly. But that is insufficient.

Precautions Against Fire

At the first show when gasoline was allowed in the building a car took fire. Since that time every car has been inspected before entering the building. Many attempts are made to evade the examination. Another year a careless or ignorant person started an electric car, which ran across the aisle and into an opposite space. Now exhibitors are required to detach battery wires or raise rear wheels. Every particle of canvas, cheesecloth, bunting and other material of the same character and all of the papier-mache which is sometimes used in great quantities, must be fireproof and the cautious manager, for his own protection and to insure his piece of mind, attends carefully to this detail. Every piece from which anything could in any possibility fall must be protected. The gallery front, for example, is not only fenced and railed, but is covered on the inside with wire screening, of close mesh.

The false platform, on which gallery exhibits rest, is made twice as strong and is twice as securely fastened as an architect considers necessary. The responsibility is great. An accident to the gallery might endanger hundreds of lives. Therefore it cannot be too secure. Nothing short of collapse of the building could pull it down.

The passageway from the Coliseum to the armory is another problem. For years a wooden structure was erected and served the purpose. But as the attendance increased it became more and more crowded. There were doors nearly its entire length and, indeed, the whole side might have been pushed out with ease in case of necessity; but the public, instead of seeking to avoid, seemingly seeks to create danger, by dropping lighted matches or cigars and causing unnecessary delays in transit. And so this passageway has given way to a canvas covering, a clean alley, special electric lighting and a gang of caretakers whose duty it is to protect the roof in case of snow and to see that the alley itself is kept free of snow or any other undesirable accumulation. The handling of the crowd at the alley entrances and exits requires great care. There are a hundred and one details which come under this same heading—the safety of the public, for the necessity of which the public is in great measure to blame.

The number of people who pass through this alley is astounding. Each of them must have a check of some kind, for they are, as soon as they leave one of the buildings, out in the street. Attention to this detail makes necessary the employment of not fewer than twenty men. The crowd is so great that no smaller number could prevent confusion and keep it in order. This year there will be less crowding than formerly, an additional opening having been provided in the west end of the annex. It may be a surprise to many to know that as many as 60,000 people have passed through the alley in a single day,—counting, of course, the tickets issued at both ends.

Devising Decoration Schemes

It takes a lot of thinking to devise a scheme of decoration for a building like the Coliseum so that each year there will be a complete change and that there shall be no thought, in the minds of the public or exhibitors that the plan is less beautiful or effective than it was the year before. The National Association of Automobile Manufacturers set the fashion to the world in this matter. The first motor car show ever held under the uniform decoration scheme was that conducted by the N. A. A. M. at St. Louis during the exposition. Now every show is conducted on the same lines. The English shows died hard, but came to it finally. The same men who designed and installed the work for the St. Louis show are still at the same post, annually preparing the show at the Coliseum.

It costs between $90,000 and $100,000 to prepare and conduct the Chicago show. Aside from the rent of the building this amount is paid to actual producers of a great variety of articles,—carpenters, painters, upholsterers, plumbers, electricians, staffmakers, scene painters, tinsmiths, ironworkers, furniture makers and dealers, printers, engravers, bill posters, newspapers, laborers, seamstresses, clerks, makers of bunting, fireproofing material, ornamental boards, flowers, ornamental glass, and others. This item takes no account of the amount spent by exhibitors.

Risks Promoters Take

To arrive at a scheme of decoration and equipment, in the production of which all these employes share, which shall be at once pleasing and new, which shall properly fit and cover all spaces, is the work of weeks. People expect great things of the motor show decoration. A part of the success of the show is due to unusual features. The work must be undertaken months in advance. The work on the Chicago show of 1912 was all laid out in July, commenced the first day of August and will be finished by the last day of the year, reposing quietly in a storehouse awaiting the final rush to put it in place.

There is some danger in this and some cause of anxiety. The storehouse may burn, the Coliseum may burn, or some other unheard-of thing may take place, and that, too, after liabilities aggregating from $60,000 to $70,000 have been assumed. This danger may, at first thought, seem inconsequential; but it isn't. Five years ago the Iroquois theater burned, 3 weeks before the show. The city closed every building in Chicago and allowed them to reopen only after inspection which, while carried on promptly, of necessity occupied several weeks. It was not known until a week in advance of the opening whether the show would be allowed to take place or not. At another time an epidemic broke out in Chicago and exhibitors sent scores of wires daily to know whether it would be safe to come and whether the show would be allowed to open. Still again, the panic of 1907 came along, and with it no end of cancellations of space and a general fear that the show couldn't be made a success.

None of these things hurt the show seriously. The inspection was made in time; the epidemic disappeared; the panic couldn't hurt so sound a thing as the motor industry. But if either of the first

two things had happened a week or so later it would have been all over with the motor show for the year and the expense incurred would have been an almost total loss. One cannot insure against such incidents.

Chicago Show Record

The Chicago show has prosecuted three features which, so far as the management has been able to ascertain, have never been duplicated. The first of these was the erection, in one piece, of a painting 305 feet long and 200 feet wide. This picture, hanging over the great bridge of Niagara Falls, would have touched the water on one side and have reached a considerable distance down on the other. There is no reason to doubt that it was the largest painting ever hung in the world. The task was undertaken from necessity, not choice. Efforts to make it and erect it in a number of parts proved that the desired effect could not be obtained. The second feature was the erection of eight natural trees, 65 feet high and 2 feet in diameter, each weighing about 6 tons, with branches and foliage complete. These trees were cut from a forest, 40 miles north of Chicago. Each had a spread of 50 feet, yet they were hauled through the streets and through a 20-foot doorway into the Coliseum without removing a single branch; and thirdly the Chicago show provided in 1908 the most comprehensive demonstration of the use of papier-mache the world ever has seen.

What do these things mean for Chicago? They mean the employment of fifty men for a year, 600 men for a month, or 2,000 men for a week. And this takes no account of 300 exhibitors, 3,000 attendants, 5,000 dealers and innumerable visitors from other towns who spend an average of $10 a day, or more, while in Chicago, on hotels, amusements and at the stores.

The installation, conduct and removal of a show requires as perfect system as any business. Rough and ready as a building may appear for a day or so before the opening, things are working systematically just the same. Last year Chicago had for the first time two sections, passenger cars the first week, commercial the second. It was necessary, of course, to clear the building of the first week exhibits to make room for the second and renovate the building, all of which, it was supposed would take all the time up to the following Monday night.

Shifting the Scenes

The show closed at 10:30 Saturday evening. No exhibitor was permitted to move a car before 10:45. At 11 o'clock, exactly, men commenced tearing up the old carpets, changing signs, remeasuring spaces to correspond with the second week's diagram, and doing all the things necessary to make a complete new show. The last car went out of the building at 12:10 a. m.—1 hour and 40 minutes after the close. Before 8 o'clock in the morning the Coliseum was ready to receive new exhibits, and at 10 o'clock Monday morning the show reopened just as if there had been no change. In the interval the building had been cleaned from top to bottom and made ready for the show.

Looking back over the shows that have passed into history, one recalls the first attempt to promote an event which, then an experiment, has since become a part of the life of the industry. It had been like pulling teeth to get sufficient exhibitors. There were some makers who would not have come in if they had been given space. A wide track ran around the building for the purpose, as the public supposed, of demonstrating. But the fact was it was there to kill space which would otherwise have been vacant. But in the mind of the writer there was not the slightest fear about the future. He remembers going up into the gallery with Senator Morgan and expressing the opinion that the day would come when it would be possible to fill the entire floor of the building with cars! Two years later we commenced the custom, which has been followed ever since, of erecting a special gallery for accessories. Then we went into the armory and down into the basement and, even though we have allowed each maker about half the space he wants, we never have since then been able to take care of all of the applicants.

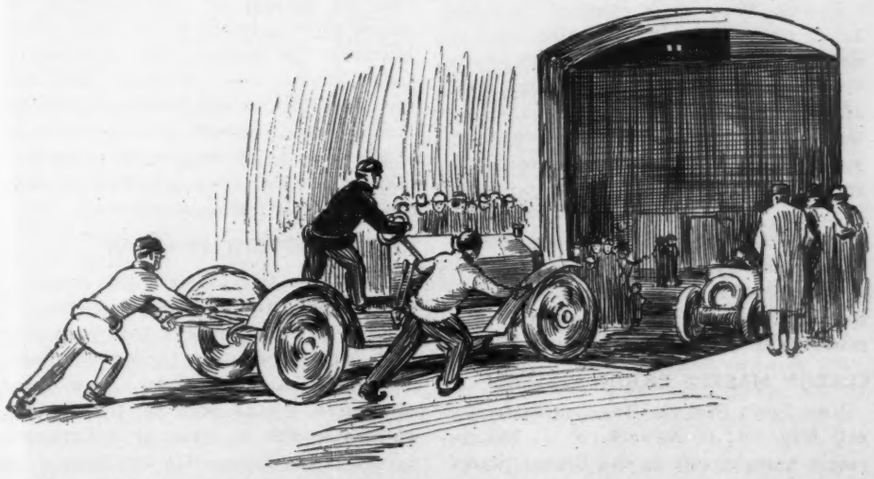
First Commercial Shows

Last year came the first of the commercial shows. With the aid of the motor cycle exhibit we filled the Coliseum. This year, with nothing but commercial cars, we shall fill both buildings. And there is no reason to doubt that the commercial department will grow to even greater proportions than the passenger car department has assumed. The cars need more space. "Then," people say, "why don't you arrange for the erection of a larger building?" Simply because the motor show is the only one of the year which overtaxes the capacity of the Coliseum. One or two other shows have threatened to use the armory, but none has done so to date. The shows are here to stay, at least for a long time. Once it was necessary, in order to get an exhibitor, to convince him that the show is one of the necessities of his business; that it is one of the best and surest ways of introducing his product; that not only because others did it, but because it would pay him to do it, he could not afford to stay away. Members of the trade who are wide awake are far beyond that stage. But they took a lot of convincing and, in the early days of the industry, frequently talked of cutting off this feature of the business which has, after the lapse of years, proved itself so necessary to the trade's well-being and which has the public's approval.

In Defense of Shows

Even to-day one hears an occasional complaint that the shows are unnecessary. They are not. They are as necessary to-day as they ever were—perhaps more so. And they will continue to be desirable for many years, whether the trade recognizes the fact and continues to patronize them or not. Why? Because the minute the trade begins to economize by destroying the shows, one of the greatest incentives to the purchase of cars will have disappeared. There are a very few things in the world that can get along without advertising. The motor trade is not one of them. Motor cars will continue to be sold, of course, show or no show; but sales will be stimulated by maintaining enthusiasm. Enthusiasm cannot be maintained by the publication of dry details. Enthusiasm comes of rubbing elbows and comparing opinions with one's fellow men. There is more enthusiasm in a crowd of clams than in a lonely man on a desert island.

The show furnishes that necessary opportunity for men who know motor cars to get together, to talk motor cars from morning until night if they want to—and they generally want to—to innoculate men who do not own cars with the motor germ and give them a chance to find out what is and is not the proper thing in motoring.



"THE LAST CAR WENT OUT OF THE BUILDING AT 12:10 A. M., EXACTLY 1 HOUR AND 40 MINUTES AFTER THE CLOSE"

Late News Concerning the Industry

Hewitt Truck Interests Separate from Metzger and Distinct Company Organized To Make Power Wagons—Another Klaxon Injunction Secured—One More American Knight Car

NEW YORK, Dec. 23—There has come a parting of the ways between the Hewitt and the Metzger interests, and as a result there has been incorporated the Hewitt Motor Co., with offices in New York, which intends manufacturing Hewitt trucks in its own plant at West End avenue and Sixty-fourth street about January 15, with E. R. Hewitt in charge. The directors of the new company, besides Mr. Hewitt, are M. F. Burns, E. C. Converse and Ambrose Monel. It is understood that W. E. Corey, the steel magnate, is back of the new Hewitt company, although his name does not figure in the deal. It will be remembered that the original Hewitt company combined in January, 1910, with the Metzger Motor Car Co., of Detroit, the alliance being brought about by the desire on the part of the latter concern to secure a membership in the Association of Licensed Automobile Manufacturers which the Hewitt company held. Now that the A. L. A. M. is no more the interests have divided.

As for the Metzger interests, they intend to continue in the truck business to a certain extent, turning out a 1-ton power wagon which will be put on the market shortly and which will have a 3½ by 4¾-inch four-cylinder motor. It will be called the Everitt. The reason given by the Detroiters for the transfer of their Hewitt interests is that the pleasure car end of their business has grown to such an extent that it requires all their energies and capital and that if they continued manufacturing trucks on the scale which would have been necessary with the Hewitt line that they would not have been able to do it justice. The Everitt truck will be made in the same plant as the pleasure cars.

CASE DEAL RUMORED

Racine, Wis.—It is rumored that the J. I. Case Threshing Machine Co., of Racine, Wis., the largest industry of its kind in the world, and for some time manufacturing motor cars, having purchased the Pierce Motor Co., of Racine, will reorganize immediately after January 1 in order to greatly extend the scope of its activities. The name is to be changed to the J. I. Case Co., and new lines of machinery and implements will be produced. It is reported that the extension of activities will include the entrance into the motor truck and farm tractor field.

KLAXON MAKERS ENJOIN PHILLIPS

New York, Dec. 22—The Lovell-McConnell Mfg. Co., of Newark, N. J., has recently brought suit in the United States circuit court for the southern district of New York for infringement of its basic Klaxon patents, Nos. 923,048, 923,049 and 923,122, by Henry Phillips. Mr. Phillips conducts his business under the name of the H. Phillips Rubber Works at 1931 Broadway, New York City. It is claimed that Mr. Phillips infringed these patents by cutting prices and otherwise violating the terms of the license set forth on the tags, sealed to every Klaxon and Klaxonet before it is put upon the market, which insist that list prices be maintained.

On December 15, 1911, the case came before Judge Ward for hearing on motion for preliminary injunction, and after the counsel of the Lovell-McConnell company had stated the case, the defendant not having appeared, a preliminary injunction was granted, enjoining Henry Phillips, doing business under the name of the H. Phillips Rubber Works, from infringing the patents in suit and from further dealing in complainant's warning signals.

BUYS DETROIT PLANT

Detroit, Mich., Dec. 23—The Universal Motor Truck Co., of Detroit, was sold on December 19 to Howard W. Walton, of New York city. The consideration was not announced. The capital stock of the concern is $350,000. The members of the company who disposed of their holdings are C. H. Haberkorn, C. B. Culbertson, August Kling, A. E. Barker, George Uhlein and Louis Camper.

ROSE COMPANY WINS DECISION

New York, Dec. 22—A decision was rendered on December 16 by District Judge John Rellstab in a suit brought by the Rose Mfg. Co. against the E. A. Whitehouse Mfg. Co. and the Le Compte Mfg. Co. in the United States circuit court for the district of New Jersey for an injunction and damages for infringement of the patent rights relating to Neverout license brackets. A decision was rendered in favor of the Rose company, sustaining the right of the complainant to include in a single suit in each judicial district all of the makers, jobbers, dealers or users in that district who are engaged in the same alleged acts of infringement.

ANOTHER KNIGHT IN GROUP

New York, Dec. 23—Another American concern will use the Knight motor for 1912, it being announced today that the Atlas Motor Car Co., of Springfield, Mass., is working on a new model in which the slide-valve engine will be the feature. The motor will be made at Indianapolis by the Atlas Engine Works, licensed by Mr. Knight, while the car itself will be made in Springfield. Another feature will be the use of worm drive, the first instance of an American car using this idea. There also will be an electric self-starter. The Knight motor will be a four-cylinder with the bore 4½ inches and the stroke 5½ inches. It is figured deliveries can be made in February and the company hopes to have a Knight car to show at New York. The two-cycle line will be continued, but the leader will be the new model.

RUBBER COMPANY REORGANIZES

Columbus, O., Dec. 23—Articles of incorporation have been filed with the secretary of state of Ohio increasing the capital stock of the Imperial Rubber Co., of Canton, Ohio, from $50,000 to $300,000 and reorganizing the company under the new name of the Imperial-Gordon Rubber Co. The reorganization and the increase in the capital stock means the expenditure of several thousands of dollars in extensions and improvements at the plant. Officers of the new concern are: C. W. Keplinger, president; C. J. Keplinger, secretary-treasurer; A. E. Gordon, vice-president and general manager; Elmer Current, superintendent. The company also owns and operates a plant at Beach City, Ohio, which will be operated separately for the time being at least.

KNIGHT TO VISIT AMERICA

New York, Dec. 23—Charles Y. Knight, the inventor, is coming to the United States from his home in Coventry, England, for a month's tour of the big show cities. The former Chicagoan will arrive in New York next week in time for the opening of the Importers' salon, where he will be joined by his partner, L. B. Kilbourne, of Chicago. Mr. Knight plans to attend meetings of the engineers while at the garden show in New York, and also will be in conference with the mechanical experts while in Chicago for the Coliseum exposition. He sends word that Laurin Klement, of Prague, Austria, not only has abandoned the poppet type of engine, but has acquired control of the Knight rights for Austria and Russia. At the Berlin show this Prague concern displayed a roadster whose motor the Knight engineers declared clearly was an infringement upon the Knight sleeve-valve patent. In a suit brought by the Knight attorneys the Knight patent was upheld. The Prague manufacturers immediately closed with Mr. Knight for territorial rights for Austria and Russia.

DURYEA SELLS STOCK

Saginaw, Mich., Dec. 24—By the purchase of the stock of Charles E. Duryea, former president of the Duryea Auto Co. by C. C. Brooks, the legal difficulties in which three injunctions were issued has been ended. Frank C. Palmerton has been elected president and general manager,

Show Plans Keep the Promoters Busy

Commmercial Car Outlook at Chicago Promising—Syracuse Will Have Novel Feature—Atlanta To Promote Exhibition—Detroit Space Allotted—Quincy Will Repeat 1911 Success

which offices Mr. Duryea held, and the company will continue to manufacture power wagons. It is claimed by Mr. Duryea that there was a compromise by which he gets the rights to manufacture pleasure cars and retains the name, trade mark, etc., and that he intends erecting a plant for the exclusive manufacture of pleasure cars.

BENNETT OVERLAND VICE-PRESIDENT

Toledo, O., Dec. 26—George W. Bennett has been appointed vice-president of the Willys-Overland Co., the promotion from the position of sales manager to a berth next to President John N. Willys being made December 20. Mr. Bennett is a veteran in the motor industry and for years was sales manager for the Rambler. Then he joined the Knox forces and after a brief stay with that concern he assumed the managership of the New York White branch, from which position he went to the Overland company.

HENRY COMPANY AFFAIRS

Muskegon, Mich., Dec. 26—Hopes are entertained here that when the court appoints a trustee for the Henry Motor Car Co., of this city, which went into the receiver's hands some 3 weeks ago, that the future of the company will be definitely outlined. It is thought that the receiver, John H. Moore, who also is city treasurer of Muskegon, will be named as the trustee, and that if there is a reorganization that the concern would have a chance to go ahead. At the present time the plant is in operation, but not much is being done, the men being engaged in assembling some of the cars that were in process of construction when the failure occurred. It is estimated that the liabilities are more than $80,000, and that if properly handled the assets would realize about $40,000 when disposed of.

ASKS FOR FAIRMOUNT SANCTION

Philadelphia, Pa., Dec. 22—Notwithstanding the fact that Dr. J. William White, a member of the Fairmount park commission, has taken preliminary steps to halt the Fairmount Park road race, and that the holding of the 1911 event created a deficit in the organization's treasury, application for sanction has been made by the Quaker City Motor Club, by the American Automobile Association, Saturday, October 5,, being the date assigned for the next race. In addition to the admission of about thirty new members at a meeting held this week, plans were made for an active winter, a feature of which will be a series of lectures on various branches of motoring—engines, tires, radiators, appliances, etc. The lectures will start about the middle of January, when Charles Y. Knight, inventor of the engine bearing that name, will deliver a lecture on engines to the Philadelphians.

CHICAGO, Dec. 26—From headquarters of the Chicago show comes news that already the number of manufacturers of motor trucks and del very wagons who will definitely display their latest models during the second week cr commercial section, from February 5 to 10, exceeds the list at last winter's show by exactly twenty. Yet new applications for space are being made every week, with practically no more space to be allotted. All space in the Coliseum building and Coliseum annex was taken long ago by forty-four manufacturers, and the armory, which was not used during the second week of last winter's show, has been divided among thirty makers. Not all of the new makes of trucks are built by new companies. At least eight are just being brought out by well-known manufacturers who have been building pleasure cars for years—several for a decade or more. Among these are the Pope, Locomobile, Lozier, Davis, Wyckoff, Church & Partridge, Speedwell, Velie and Diamond T.

BIRD SYMPHONY FOR SYRACUSE

Syracuse, N. Y., Dec. 23—A half-million dollars in cars and $150,000 in accessories will be represented at the third annual show of the motor car dealers of Syracuse at the state armory in March. So far applications for space have been filed by local agents of the Hudson, Overland, Stevens-Duryea, Mitchell, Regal, Maxwell, Columbia, Peerless, R. C. H., Packard, E-M-F, Cadillac, Flanders, Ford, Reo, Rambler, Velie and Everitt.

Contracts have been let for the decorations. There will be an immense fountain, electric showers of lights in fine designs, and the bird symphony. The latter feature is borrowed from the recent industrial exposition here. From the center of each first-floor booth will be suspended a birchbark basket cage containing a canary bird, all picked songsters.

PROVIDENCE'S SHOW SCHEME

Providence, R. I., Dec. 26—A particularly attractive decorative scheme has been worked out for the interior of the state armory, Providence, during the week of the show to be given by the Rhode Island Licensed Automobile Dealers' Association, on January 22-27, inclusive. The exhibition will be the first in 3 years within the state. The interior of the drill shed will be transformed into a pleasing exhibition space by the extensive use of trellis work and bunting. In the upper or main hall the pleasure vehicles will be shown. The basement hall, where the artillery companies are quartered, will be used for commercial vehicles and accessory displays. Forty-three different makes of pleasure vehicles will be shown in the main hall and sixteen styles of commercial trucks or delivery wagons will be found in the basement section.

ATLANTA ON CIRCUIT

Atlanta, Ga., Dec. 22—A show will be put on in the Atlanta Auditorium-armory February 10 to 17. Virtually all the space has already been applied for and it is likely that the original allotments will have to be cut down somewhat to make room for the late comers. On December 22, 17,000 square feet of the 20,000 that is available had been subscribed for.

ALL DETROIT SPACE ASSIGNED

Detroit, Mich., Dec. 25—Space in the Wayne pavilion and temporary annex, for the eleventh annual show of the Detroit Automobile Dealers' Association, is now all assigned, the final drawing having taken place last Friday night. There were forty-three applicants for the 10,000 additional feet of floor space afforded by the annex, and most of them were taken care of, although some of the exhibits will be somewhat cramped. The following manufacturers and dealers have been added to the list of exhibitors: American Steam Truck Co., of Lansing; Grabowsky, Coleridge Motor Truck Co., Cleveland; the Neumann-Lane Co., Kissel, Hayward Motor Car Co., Port Huron; the Poss Motor Co., the Miller Motor Car Co., Cunningham Co., the Anderson Electric Car Co., the Oliver Motor Car Co., Lion Motor Sales Co., Overland, Herreshoff and the Paige-Detroit.

BALTIMORE'S PLAN

Baltimore, Md., Dec. 25—The Baltimore show plans have three sizes of floor space. These will be the minimum, intermediate and maximum. The dealers will be notified to file applications before January 20. After that date the space in the armory will be reckoned with that required by the dealers and if the armory floor is not large enough, each applicant will be reduced on a percentage basis. The dealers then will be notified of their spaces and also the date for drawing.

QUINCY WILL REPEAT

Quincy, Ill., Dec. 22—The second annual Mississippi valley show, embracing the states of Illinois, Missouri and Iowa, will be held in Quincy the week of February 26-March 3, 3 weeks earlier than last year. The change in date is made so as to conform to the other dates of similar shows in the central west, and at the request of dealers.

The show is given in the fireproof stone pavilion, with a floor space of 20,000 square feet.

MOTOR AGE
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New Year's Resolutions

TURNING over new leaves and determining on a few resolutions for the coming year would prove a good investment for several of the concerns engaged in the manufacture of motor cars and accessories; it would be good policy for some dealers and some branch managers to do a little thinking on the subject. There are many departments in the motor business in which a few changes would be welcome. Only those changes which will be of permanent value are worth considering.

SYSTEM is one of the biggest and most necessary factors in the business. The car maker who has not analyzed the working conditions of his factory will not be aware of the saving accomplished by the use of a good system. This is especially the case in big manufacturing rooms of a car plant. Time is lost by not having proper racks on which to support the raw material at the side of the drill, the lathe, the milling machine or any other factory machine. The importance of having a good rack on which the workman can place the finished article also is of prime importance. There are factories where the piece to be worked upon is taken off the floor and as soon as it is finished it again is placed on the floor. A case of this nature recently came to hand in which a screw was being cut. The workmen spent 15 minutes cleaning the dirt off of the piece when he picked it up off the floor and before he could put it into the machine. System would save that factory thousands of dollars per year in this field.

A CHICAGO car dealer made the statement: "I have not been making the money I should have but do not know how to find out where the trouble is." A rival dealer remarked: "I put an accountant in my place for several weeks every year and I know exactly how much each department costs me. I know if my repair department is operating at a gain or loss, and if so, how much; and also what are the reasons that bring such conditions about." These comparative statements give a glance at the necessity for New Year's resolutions and also what can be accomplished by following good ones. There are many dealers hard up today simply because they have not the proper systems operating in their salesrooms or repair departments or garage departments. So few dealers think to charge each department up with its share of overhead charges. They deceive themselves. They tell their neighbor how they have made money on their second-hand department but not in one single computation have they charged this department with its proper percentage of rent, with its insurance share, with its telephone percentage, with its overhead management share and with the several other legitimate charges that should be counted up against the department. Any department can be made a success if the overhead and a score of other legitimate charges are not counted in its expenses. The dealer or manager of any other business who does not look into the details as he should sooner or later will find himself up against an unknown factor in his business; namely, that of ignorance regarding the real condition that exists in each and all of his many departments.

SYSTEM will help many of the publicity departments in the different factories. Judgment also will be a big help to them. The publicity department is the one that tries to let the public know everything in other channels than through the advertising pages. It is a good legitimate department. The greatest trouble with many of them is that they fail when it comes to a real question of news judgment. Motor Age knows of companies that have won an important hill-climb, reliability run or track race on the 15th of the month and their publicity department has sent out the story 2 weeks later. That department apparently forgot that there is a time element in news of that nature, and that if they hope to get such published they must be up to the minute.

THE preparing of catalogs often is up to the publicity department and in this respect there are a score of makers who are losing out. Many catalogs are of little value. They do not convey much information. Such a compiler imagines that everybody is as much interested in his car as he is. He deals entirely in generalities; he considers it one of his cardinal points to avoid information of a detail nature. It seemed an unalterable law that everything that savors of facts should be avoided and the biggest possible generalities substituted. This is all wrong. A catalog should be a student proposition. The man who carries a catalog home in his pocket does so because he wants to get more information on the car; in a word, he wants to make a study of it. Many catalogs are the very opposite of this. A study is out of the question. Catalogs should contain arguments, arguments backed up by facts. They also should contain car details and analyses—describe mechanical changes and principles. There are a few that measure up to this standard, but there are many more that are lacking in nearly every respect. They disappoint the reader, who is looking for the car information, and their field of usefulness is cut in half in this way. Well written catalogs, containing information of the sort desired by the buyer, more than pay for themselves and they should be the rule, not the exception.

ADVERTISING departments can con over a few New Year's resolutions. During the past year there has been a feeling among many makers that there has been much misleading advertising. A certain car wins a hill-climb, a reliability run, a road race, a track race, or a beach race. The advertisements create wrong impressions. The other makers object, and as a result much of the value of the victory is lost. It should not be hard to write a plain statement of facts in an advertisement. Many have tried to do the opposite. Cars that only won their class in a hill-climb have been advertised as winning the climb. In road races often the car finishing second or third has been advertised as if it were the only real winner in the event. All of this distortion of the facts; all of this intending to convey a little different impression than what the bald truth should convey is disastrous. It is damaging to the industry. It is a regrettable state of affairs. The industry is worthy better treatment at the hands of those comprising it. Where the individuals of a society, or a community, are false it is hard for the community as a whole to carry that clean front that it should have. Advertisements which convey impressions that do not coincide with the facts should be stopped and the controlling bodies should make it a severe penalty where such take place.

Westerners Working on Another Trail

PHOENIX, Ariz., Dec. 22—Eighty-four delegates from Arizona, California and New Mexico met in the state capitol at Phoenix December 20 and 21 and formed the Ocean-to-Ocean Highway Association. The main object of the association is to work for the construction of a transcontinental highway passing through the three states represented in the convention.

It was left to the three delegations to decide upon the route to be taken by the highway in each state. Arizona and New Mexico had no trouble in reaching an agreement, but eleven California delegates withdrew when the convention refused to receive their minority report.

Governor Richard E. Sloan of Arizona issued the call under which the convention was held. The following officers were elected: President, John S. Mitchell, Los Angeles; secretary, J. S. Conwell, Los Angeles; treasurer, A. W. Ballard, Phoenix; vice-president for California, A. G. Spalding, San Diego; vice-president for Arizona, Del M. Potter, Clifton; vice-president for New Mexico, D. B. Sellers, Albuquerque. The legislative committee chosen consists of Stoddard Jess, Los Angeles; Thomas Early, Pasadena; F. A. Miller, Riverside; A. W. Balfour, Pomona; Rufus Choate, San Diego. All members of this committee are Californians.

The New Mexico route recommended by the convention starts at the Arizona line 16 miles east of Springerville and proceeds eastward to Magdalena, Socorro, San Antonio, Carthage and Albuquerque; thence to Santa Fe, Las Vegas and Raton, leaving the state on the old Santa Fe trail 12 miles north of Raton on the Colorado state line.

Following is the Arizona report: "Resolved, That the transcontinental highway, in crossing the state of Arizona, shall begin at Yuma on the Colorado river and run thence along the course of the state highway as heretofore surveyed to the city of Phoenix, thence by way of Tempe and Mesa to the Roosevelt dam, thence to the city of Globe over the state highway already constructed, thence to San Carlos on the Gila river, thence up the Gila valley to Clifton, thence northerly to Springerville, thence easterly to the Arizona and New Mexico line to form a junction with the highway as constructed through the state of New Mexico."

The California majority report follows: "Whereas, the California delegation of the Ocean-to-Ocean Highway Association, in caucus assembled, believing that the route presenting the fewest geographical and physical obstacles, should be endorsed for the national highway, having under consideration the advantages of having such a highway pass through as much settled territory as possible, and within striking distance at all times of a transcontinental railroad, therefore, be it

Arizona, California and New Mexico Organize Ocean-to-Ocean Highway Association To Get Transcontinental Plum

"Resolved, That the California delegation recommend as a course for the national highway, a route running westerly from Yuma, along and near the Southern Pacific railway to a point about 4½ miles west of Mammoth station, thence southwesterly to Brawley, thence northwesterly along the south and west side of Salton sea to Mecca, thence along the main line of the Southern Pacific railroad to Beaumont, Redlands Junction, Colton; thence by shortest road to Los Angeles."

Rough drafts of articles of association and by-laws for the organization were drawn by a committee appointed for that purpose and approved by the convention as follows:

"First: The establishment of a system of national highways which shall traverse the states of California, Arizona and New Mexico and such other states as may choose to affiliate.

"Second: For the establishment of a uniform system of road building throughout the country.

"Third: To obtain federal aid and co-operation toward the establishment of a system of interstate roads between the states of California, Arizona and New Mexico and such other states as may affiliate.

"Fourth: To obtain the co-operation of all states in the Union for the purpose of obtaining federal aid toward the establishment of a series of national highways traversing the United States of America and to that end we earnestly request the co-operation of all states in the union and assure them of our hearty co-operation in bringing about said highway to promote the objects of this organization."

HARLAN W. WHIPPLE DEAD

Boston, Mass., Dec. 26—Special telegram—Harlan W. Whipple, former president of the American Automobile Association and the founder of taxicab companies here and elsewhere, died suddenly last night at Lawrence, Mass., of heart trouble.

Mr. Whipple was president of the A. A. A. at a time when it looked as if the national organization was going to pieces—the time of the trouble during the Ormond beach meet when Bowden, Vanderbilt and Wallace resigned from the racing board and Mr. Whipple himself resigned the presidency. At the time of his death Mr. Whipple was vice-president of the Bay State club. He was born in South Dartmouth, Mass., October 8, 1865.

AUSTIN, Texas, Dec. 23—While Texas made a notable record in the construction of good roads during the present year, there is every indication that it will far exceed its work in that line during the year 1912.

Another thing besides the motor car that has encouraged the good roads movement in Texas is the more liberal local laws which the legislature has passed for many counties in the state governing such work. It is considered practically certain that the next legislature will enact a state highway commission law which will still further advance this movement. A measure of this kind was before the last legislature but failed of passage.

There are several ambitious projects for the construction of trunk lines in the state on foot at this time, and the prospects are encouraging for their consummation during the coming year. One of these proposed highways is to run from Port Arthur to Houston via Beaumont, thence along the gulf coast through a number of towns to Corpus Christi, thence north to San Antonio, a total distance of more than 500 miles.

Several stretches of this proposed highway already have been constructed and work is in progress on others, several of the different counties through which it passes having voted bonds for the purpose. Another proposed trunk highway is to run north and south through the state, starting at Brownsville near the mouth of the Rio Grande and extending north to the Red river, a distance of more than 500 miles. Its route is through a large number of thriving cities and towns of the state. The construction of the southern end of this road is already in progress in Cameron county. Another proposed trunk road is to run from Texarkana east to Sherman, where it will connect with the proposed road that is to be built between Dallas and the Red river.

There is unusual activity in the construction of good roads in what is known as the black-waxy land belt of the state. Owing to the almost impassable condition of unimproved roads in that character of soil farmers find it necessary to bring about the improvement of the country roads in order to be able to get their products to market during the rainy periods.

While it is impossible to estimate at this time the amount of bonds that will probably be issued for the construction of good roads in Texas during the year 1912, it is thought that the total sum will aggregate more than $10,000,000, as compared with something more than $7,000,000 for 1911. In many of the black-waxy counties of the state there will be 50 to 200 miles of completed good roads by the end of 1912.

A PANORAMA OF WAVERLY, A TOURIST POINT NEAR HALIFAX, NOVA SCOTIA. THIS SCENERY IS

Motoring in the Maritime Provinces

By Paul R. Hanson

OLD BRIDGE AT ST. JOHN

ON October 3, 1910, there appeared in the columns of the Halifax Chronicle the following item: "Paul Hanson, E. J. Terry and F. C. Gates, of St. John, are guests at the Halifax hotel. The party left St. John on Saturday morning in a motor car and came as far as Amherst that day, coming to Halifax last night."

Just 10 days later the St. John Telegraph published the following news item: "Paul R. Hanson returned from Halifax yesterday in his touring car."

To the average newspaper reader these news items would be of but little interest, but to the motorist or tourist who is acquainted with the Canadian maritime provinces, they are significant in the extreme.

They mean, in short, that these tourists were the first to have successfully made all the way overland, in a motor car, the round trip between the cities of St. John and Halifax. They mean that with their car they traversed some of the most rugged country in the northern hemisphere; a country abounding in magnificent scenery, virgin forests, and vast plains cut by mountain torrents and deep ravines. While in certain sections the roads are as good as the average highways of the eastern states, a certain part of the trip they are but mere trails along the hillside or through dense forests of spruce and pine.

As the crow flies overland, the distance from St. John to Halifax is but 300 miles, but as these tourists went, zig-zagging across the country, their car carried them nearly 700 miles.

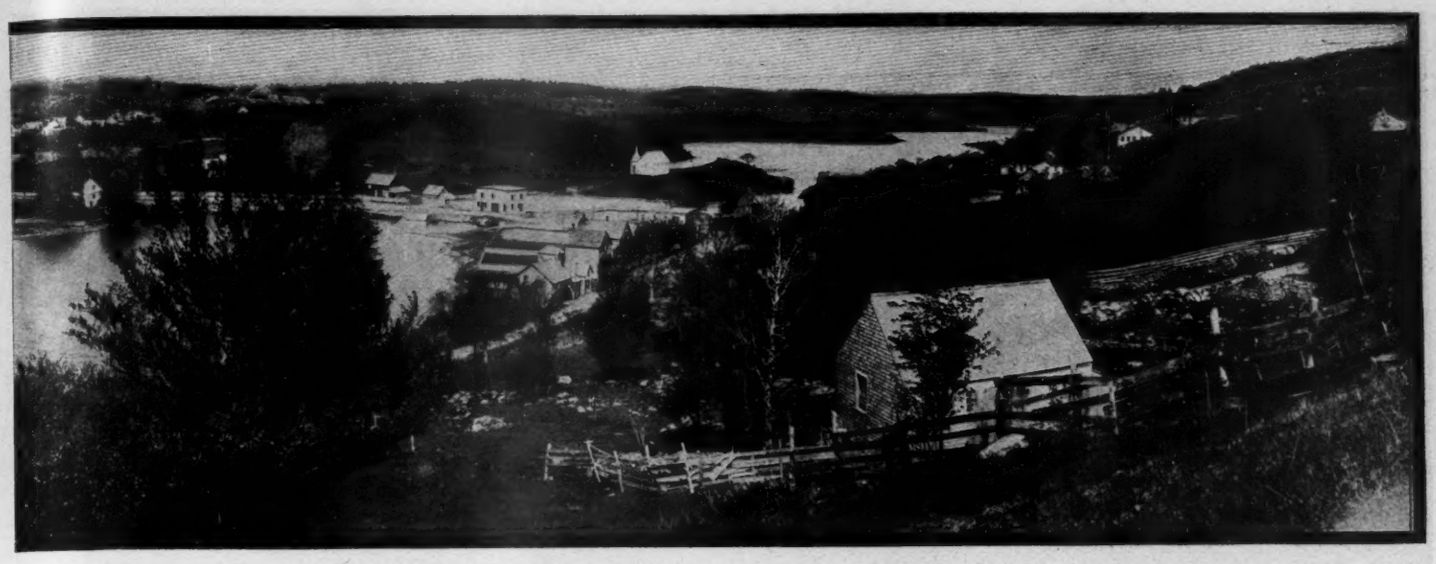
It was a beautiful October morning when the tourists pulled away from their garage in St. John. The road from St. John to Moncton is one of the finest in the maritime provinces, and leads through one of the picturesque valleys of the province. It is well kept, winds along the banks of the Kennebecasis, and crosses fertile farms that have been reclaimed from the forest lands. Many thriving villages are en route.

Hampton, 25 miles from St. John, a favorite summer resort, was reached in an hour. Forty-four miles out, the town of Sussex was reached, and then commenced the long, steep climb up the Anagance mountain. Mr. Gates, who by common consent had received the nickname of "Pearly Gates," alias "Nimrod," "allowed as how" the tourists' larder needed replenishing, and, as the car was admirably creeping up the hillside, leaped nimbly from the car, and vanished with his trusty Flobert into a thicket in search of game. But few minutes had elapsed when the whizzing of partridges was heard; rapid shots in succession followed, and then, out of the thickest part of the bush appeared our hunter laden with a brace of fine birds.

Once over the mountain, the road rises and falls with the undulations of the hills, and plunges every now and then into the forest which skirts the river. The driver's job ceases to be a sinecure, the road becomes narrower, and the turns are sharp and abrupt. Here you make the acquaintance of that motorists' abomination, the pole-constructed culvert, originally built on a level with the road, but which, worn by rain and traffic, proves a menace to speedy going. Fortunately, the country roads' commissioners have partly replaced them with more sound bridges of stone and cement.

Moncton, one of the most progressive towns of the maritime provinces, and the headquarters of the Intercolonial railway, was reached early in the afternoon. Moncton has a special attraction for tourists who are fond of seeing the curious in nature. It is the bore of the Petitcodiac, a phenomenon that is to be seen every time the tide comes in, though it is seen to much better advantage at the time of the full moon tides. In order to understand what the bore is, one must have an idea of the relation of the river to the Bay of Fundy, and of the Bay of Fundy to the Atlantic ocean. All three are necessary to constitute the bore as it is seen twice in every 24 hours at Moncton.

When there is not any tide, the river goes out of business for all practical purposes, and only shows what a chance there would be for a river if there were enough water to fill the yawning hollow between the banks. There is some water, it is true, but the quantity looks to be so small as it flows along the channel, with the hundreds of feet of sloping



TYPICAL OF THIS SECTION OF THE MARITIME PROVINCES. IT IS A GREAT MOTORISTS' RESORT

Ramble Through the Land of Evangeline

banks of red mud on each side, that it is scarcely worth considering. There are miles of this slippery mud inclined at an angle of repose, and for several hours each day the vessels at the wharves are as clear of the water as if they were in a hay field. This is the way the Petitcodiac appears when the stranger goes to see the bore.

In the meantime, however, the tidal wave of the Atlantic has struck the coast of North America, and, pouring into the Bay of Fundy, has risen higher and higher as its volume has become compressed by the narrowing shores. Reaching the head of the bay, it is forced into estuaries, and at high water has risen from 25 to 54 feet, the height varying with the spring and nip tides.

The tide after it enters the wide mouth of the Petitcodiac meets with a check to its regular flow by the narrowing of the river, about 8 miles below Moncton. The flood does not pause, but comes through the narrow space in a hurry, rolling itself up the river in a wave which looks like a rapidly advancing wall of water. This is the bore. The height of it varies according to the conditions by which the outside tidal wave is governed. There are occasions when it is a bore of only 1 or 2 feet, but at spring tides, at the full moon, there may be a wave of from 7 to 10 feet high, or possibly more. It is seen with peculiar effect by moonlight. On a still summer night those who are waiting on the wharves high above the bed of the river, hear in the distance a low rumbling, which becomes a roar as the seconds pass. When the bore comes in sight the contrast between the advancing flood and the bare bed of the river suggests, for a moment, the old bible pictures of the Red sea divided for the passage of the children of Israel, or rather the closing of that sea after the chosen people had passed over. In another moment the foaming, rushing volume of water has covered the channel and risen high up on the banks. Another wave follows, and, ere long, what was but a little while before a muddy hollow is a broad and beautiful river, glistening like molten silver in the moonlight, a sight that is most entrancing.

It is a delightful ride from Moncton to Hopewell Rocks, those geological marvels of this part of the Bay of Fundy shore. Sculptured into most fantastic mould by the powerful tides, the gigantic rocks rise from the beach to a tremendous height, and at their base are caverns and grottos that suggest to the visitor fancies of fairyland.

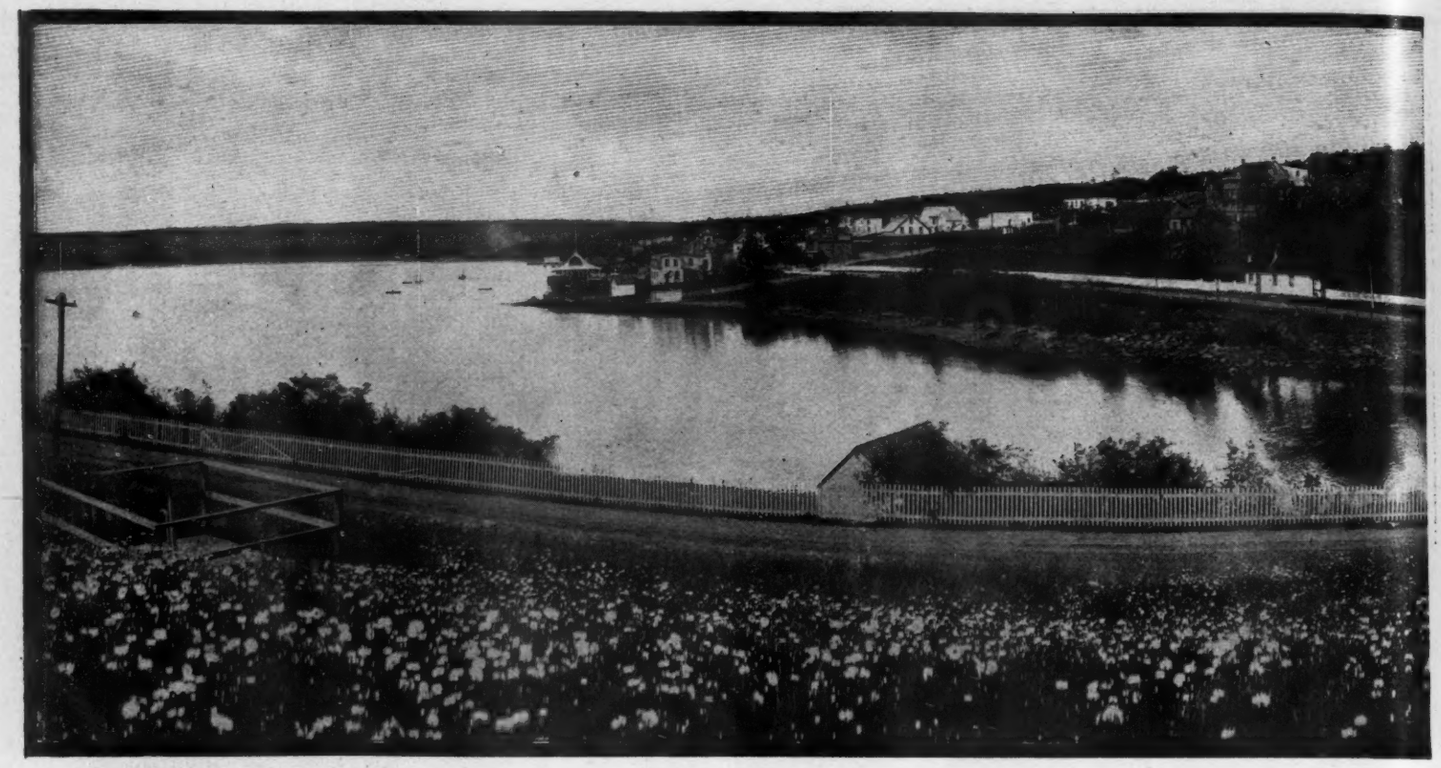
THE REO AND ITS TWO PASSENGERS

At Amherst are the most productive fields of Nova Scotia. Long, flat marsh lands, protected by dykes, stretch along the length of the Bay of Fundy, and yield immense crops of hay and potatoes. Here the tourists met for the first time the red clay roads which were to be followed right through to Halifax. Fortunately, on the first day, the roads were dry and solid, and good progress was made until Amherst was reached early in the evening.

Truro was the next objective point, 97 miles away, and the start was made at 11:30 in the morning. Parrsboro, a quaint little village on Minas Basin, was reached without incident worthy of mention in 2 hours.

While at Parrsboro the visitors had a chance of looking up to Cobequid bay. From Truro they can reverse the picture and look down. By ascending Penny's mountain, 3 miles from the court house, a splendid view is had, taking in the range of North mountains, terminating at Blomidon, of Longfellow's Evangeline fame, while the river meanders gracefully through the valley on its way to the troubled waters of Fundy From Wollaston Heights, a mile from the court house, is found another fine view of the surrounding country, while the best views of the town down to the bay, are had from Winburn and Fundy hills. A drive to Old Barns, otherwise known as Clifton, will be found of interest. The Shubenacadie has a bore, similar to that of the Petitcodiac at Moncton.

For 2 miles out of Parrsboro can the highway travelled to Five Islands be dignified by the name of road. To adequately describe its abominable features would require the pen of a Dante and the patience of Job. For years the trail has been known as the Devil's Elbow, and it is, in truth, well named. Plunging into the depths of an almost virgin forest, and skirting a rocky mountain torrent, the tourists ploughed through mud, axle deep. It was a case of plug, plug all the way.



A PANORAMA OF BEAUTIFUL BEDFORD BASIN NEAR HALIFAX, NOVA SCOTIA, ONE OF THE MANY SHOW PLACES OF

After what seemed a century, although it was but 3 hours, the 13 miles of mud and stone came to an end, and the car emerged from the forest onto the shores of the Cobequid Bay. It did not take the tourists long to cover the 50-odd miles to Truro, and by 9 o'clock were at Hotel Learmont, in that city.

From Truro to Halifax the road runs through a fine country, the most flourishing portion of which is not seen by the train traveller. Large tracts of rich intervale and excellent upland combine to make one of the finest farming districts in Nova Scotia. Through this flows the Stewiacke river, which takes its rise among the hills of Pictou and flows for 40 miles or so until it empties into the Shubenacadie at Fort Ellis. The Shubenacadie is a large and swift stream, and was at one time looked upon as the future highway of commerce across the province. Nature had placed a chain of lakes at the source of the river, and it would seem that art would have little trouble in constructing a canal to Halifax.

Both the Stewiacke and the Shubenacadie have good fishing, and so have the lakes beyond the latter as Windsor Junction is approached. Grand Lake has fine fishing in June, July, September and October. Some years ago 120,000 white fish were put into this lake and are doing well. All the lakes of Halifax county afford good fishing, but the rivers, with few exceptions, are short and rapid streams which become very low during the summer season.

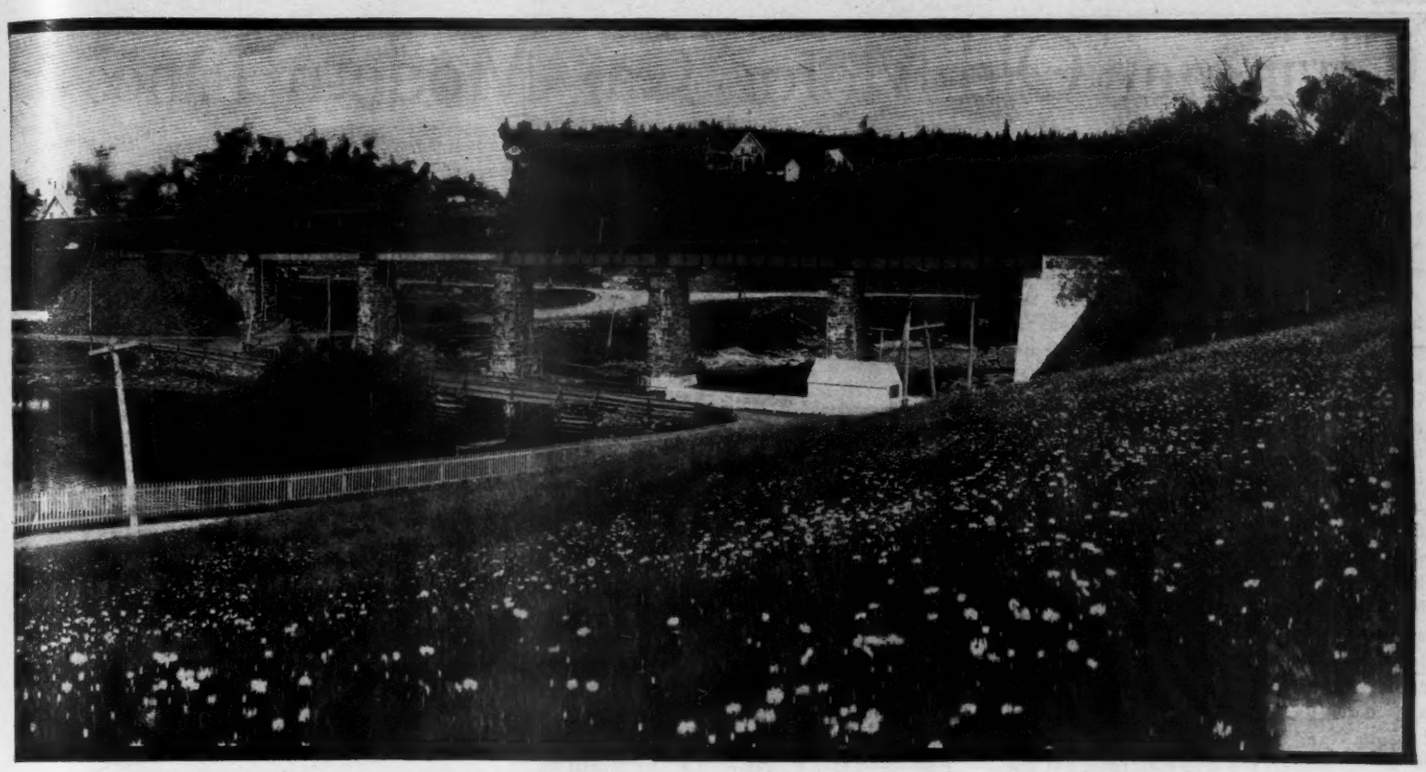
A GOOD MOTORING ROAD ALONG BEDFORD BASIN

Game is abundant in the country between Shubenacadie and Canso, and some of the finest moose in Nova Scotia have been found in that district. Moose, indeed, are occasionally captured close to the railway, and it is only a few years since three of them were run down and killed by an express train near Wellington, 21 miles from Halifax. The ride into the capital was uneventful.

During the tourists' stay in Halifax, many interesting trips were taken to famous scenic points around the harbor. Bedford Basin, Herring Cove and Dutch Village, with their quaint fishing huts and boats, were all visited in turn, and one bright afternoon the cars climbed to the top of the citadel, and here, under the grim walls of the renowned old fortress, a magnificent panorama was had of the city and bay.

Favored with perfect weather going, the return portion of the tour proved to be a constant battle against the elements. In spite of the disheartening road conditions, the car ploughed valiantly on, and in 27 hours' actual running time reached St. John.

From Truro to Amherst the travellers are carried over the Cobequid Mountains, and when they reach Folleigh Lake they were 607 feet above the sea. The air was very bracing. The scenery among the mountains is more than picturesque. Sometimes the eye will catch a pastoral picture of a winding valley, dotted with cottages and in the midst of fertile



THAT PROVINCE THROUGH WHICH NEARLY ALL MOTORING PARTIES PASS WHEN TOURING THE PROVINCE

fields, while far below them a glistening of water tells where the river flows through the bright green intervales, or leaps in fairy-like cascades in its journey down the hillside. The glorious panorama is continued as the car runs its course through the picturesque Wentworth valley.

Halifax to Truro was made in 5 hours, and the tourists made Amherst in but 6 hours and 20 minutes.

To those who are contemplating summer tours, a trip through the maritime provinces is to be highly recommended. St. John, Yarmouth, Digby or Halifax can be quickly reached by boat from Boston, or if the motorist desires to come overland from the States, the road through Portland and Bangor is most satisfactory.

Instead of being subjected to the tiresome and costly red tape methods at European frontiers, the tourist is permitted to enter Canada and remain there months, upon deposit into the customs office a bond which may be had at an insignificant cost, usually $5, from the landing agent at the border.

The tourist is not obliged to re-license his car upon entering any of the maritime provinces, and may tour throughout the entire country without molestation, provided he observes the reasonable road regulation of the province. "Keep to the left" is the rule.

Nova Scotia and New Brunswick are unexcelled summer resorts, and when the eastern American cities are sweltering in the heat the cool sea breezes which sweep across the maritime provinces make living worth while.

Nowhere can be found more picturesque scenery—the pine forests and ocean shores never lose their charm, and the quaint villages and towns along the wayside are a new world to the motorist who has exhausted the scenic possibilities of his own land.

As for the roads, they are quite on a par with the highways in the Central West, and some stretches, notably the road from Yarmouth to Windsor, Moncton to St. John, St. John to Fredericton, etc., are quite as good as the rest of America. In dry weather the red clay roads are excellent, and it is only in certain isolated sections, such as were traversed on the above trip, that the tourist should take extreme precaution.

There are excellent garage facilities in all the larger cities, and in the smaller towns gasoline and oil can be readily obtained from hardware stores. Hotel accommodations through the provinces are reasonably satisfactory. Therefore, there is no reason why motorists from the States should not give this section consideration when making their plans for a long jaunt. Certainly they will find the scenery picturesque enough to interest them, while the historical relics are well worth the trip into this section of the dominion of Canada.

THE OLD CLOCK TOWER AND PART OF THE CITADEL AT HALIFAX

Giving an Old Motor Car Modern Lines

How an Oldsmobile Runabout Can Be Entirely Rebuilt With Wheel Steering, Longer Wheelbase, Longer Springs and Other Features for Sum of $48.25

FIG. 1—FRONT VIEW OF RUNABOUT AFTER ALTERATIONS WERE MADE SHOWING THE FALSE RADIATOR FRONT

By Victor W. Page

MANY motorists who are familiar with the rapid growth of the motor car industry and who have watched the evolution of the modern car from the first crude and comparatively inefficient forms to the modern vehicles may wonder what has become of the many thousand old cars that have been produced in times past and which are now considered out of date and therefore useless. Many of these are still in daily use, especially in small towns and rural districts, where appearance does not militate against their use and where utility is judged more by performance and cost of operation than by graceful lines and fine finish.

In a city or place of any pretensions, however, one may just as well be dead as be out of style, and any one owning and operating a car of ancient vintage, no matter how useful it is, is looked upon with amusement mingled with pity by neighbors and acquaintances. The mechanism may be sound and well adjusted, the car may be quiet, easy to run and maintain, yet the fact that it is unconventional or a trifle behind the times in appearance results in a depreciation in value as large as it is unjust.

Redesigning the Car

One owning a car whose lines are not strictly up to the modern standard, yet who is satisfied with its performance, often parts with it at a considerable sacrifice of money to purchase a car of later design which will not be so satisfactory. Others attempt to remodel the vehicles without due regard to appearances and after spending considerable time and money find that the final result is not much of an improvement over the design evolved by the original designer. The mistake often is made of attaching a hood or bonnet that is all out of proportion to the rest of the car and which projects over the front axle a considerable distance; to use poorly designed mud guards and foot boards; to cut down the body sides without altering control elements, such as the angle of the steering post or length of control levers; to attach a box or basket to an already high rear deck or allow it to project for some distance back of the body, and other similar changes intended to disguise the car. The alterations are so made that it is evident to all, no matter how inexperienced, that the car is but a makeshift and therefore an object of ridicule.

A little study of the car, taking into consideration the arrangement of the mechanism, a few intelligent measurements and some rough drawings, which must be made to scale, however, will show much and enable the amateur designer to have some conception of the appearance of the remodeled vehicle. To show what can be done in this respect when the problem is attacked in the right manner, the writer will detail briefly some of the steps taken by him in changing an old-type car over to a runabout having more modern lines and the approximate cost.

Work of Reconstruction

The car, which is shown in its original form as Fig. 3, was a taype which enjoyed great popularity for a number of years. It was purchased by the writer for a very small sum, after it had seen considerable service, and as the mechanism was in fair condition it was run that season without any alteration except some minor mechanical repairs. Its appearance, the vehicle then being in its seventh year, always attracted attention, and the remarks of that merciless critic, the small boy, caused the writer mental uneasiness so many times that it was determined to so alter its appearance that it would not be conspicuous or attract more attention than the average conventional small car. The result after making the changes is shown at Figs. 1 and 4, and it is obvious that the lines have been materially improved and conform more to the vehicles of 1911 than the style of 1903 depicted as Fig. 3.

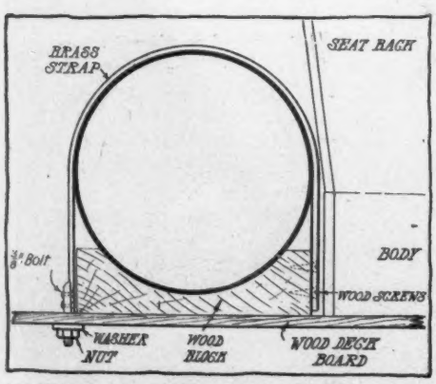
The wheelbase was lengthened from 68 inches to 84 inches, greatly enhancing the ease of riding and materially improving the appearance. The old toboggan front or curved dash was replaced by a less ornate straight member, which served to separate the hood from the body, as well as serving as a basis for attaching the steering post, a dash coil and switch and a pair of oil side lights. The tiller steering device was discarded and a wheel steering device, contrived from odds and ends picked up at various repair shops, was installed to direct the vehicle.

Changing the Appearance

A casting was made of malleable iron to conform to the shape of a modern radiator and installed at the front of the lengthened chassis, the deception being further promoted by the use of a stock sheet steel mesh such as used for fronts to air-cooled cars. The muffler was dropped from the body to a position directly beneath that it originally occupied, the old galvanized iron water and gasoline tanks were also removed from the body interior. This left the mechanism of the car very accessible and everything could be easily reached, a condition just opposite to that which formerly obtained.

The first step was to lengthen the wheelbase, which was very easily accomplished. In the original car, the power plant, tanks, muffler and transmission were all mounted on a malleable iron frame, approximately square in shape and of an even leg angle iron section 1.75 inch by 1.75 inch by .25 inch. This frame, which also served to support the body, was mounted directly on the side springs which joined the axles together, the whole forming the chassis assembly.

These springs were not solid; that is, the leaves did not extend from one end to the other; only the bottom and heaviest



METHOD OF TANK ATTACHMENT USED IN RECONSTRUCTION

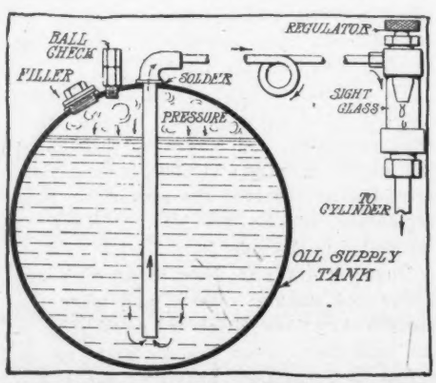


DIAGRAM OF OILING SCHEME. FEATHERED ARROWS DENOTE OIL FLOW

leaf was full length. The other members were in two pieces each, one at the front, the other at back, being separated from each other by a wood filling about 10 inches long. The object of this arrangement was evidently to give superior resiliency to the side member, as the lower leaf probably was strong enough to carry a large part of the road, the other laminae serving as reinforcing members at the front and rear. To lengthen the springs, the lower leaf was cut in half on each member, a new piece of spring steel was welded in, making the side springs 16 inches longer than they were originally. As there was no need for spring at the center part, owing to that portion being bolted directly to the frame, this did not interfere with the utility of the member and the welding heat only took the temper from the part of the spring where it was of no value, leaving the resiliency in the springs at the end, where it was needed.

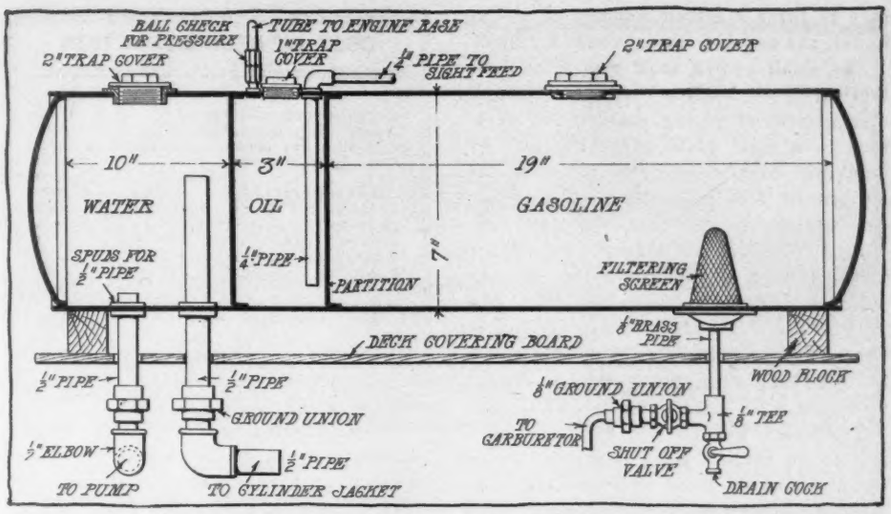


FIG. 2—SECTIONAL VIEWS OF THREE-COMPARTMENT TANK SHOWING ARRANGEMENT OF THE VARIOUS LIQUID CONTAINERS IN ONE ASSEMBLY. DIAGRAM OF OIL SUPPLY SYSTEM AND METHOD OF SECURING TANK TO REAR DECK FIXED PORTION

Lengthening the Frame

To lengthen the frame out to take care of the augmented spring length, two pieces of angle iron, with a section 2 by 2 inches by 0.25 inch and 6 feet 8 inches long, were fitted under the original frame. These projected over the axle when moved to its new location 16 inches ahead of the old one about 2 inches. Everything was added at the front of the machine, the rear end being left substantially as it was originally. This enabled the writer to leave his power plant occupying the same position relative to the rear axle, as it did before the alterations were made, thus involving no change in length of driving chain because the distance between the sprocket centers was conserved.

The front of the body was cut off and small risers attached to the top of the sill to serve in bracing the dash, and also to support an inclined footboard, carrying the foot brake, the accelerator and another pedal that was fitted to succeed the old lever at the side of the seat, formerly utilized to apply the emergency brake on the differential casing. Instead of fastening the dash to the body, it was attached securely to a couple of angle or L pieces bolted to the new angle iron frame side members, and the pedals, also the radiator, which were attached directly to the body in the old design, were secured to the frame in the altered form. This enabled the writer to take off the car body without disturbing any of the mechanical parts, it being necessary to disconnect only the water and gasoline pipes and several oil leads.

Utilizing the Space

The front of the frame under the hood and directly forward of the dash provided considerable space, which was filled with a special box having compartments to house two sets of batteries, a complete outfit of tools, pump, jack, tire supplies, spare inner tube and extra lubricating oil, none of which could be very easily stowed away with the old arrangement without utilizing space in the body and making the mechanism very inaccessible. With the old arrangement of parts it was necessary to remove the body for such trifling adjustments as packing the water circulating pump stuffing box, which was located directly under the battery box when that was under the seat. Putting the batteries under the hood enabled one to reach the pump directly from the top through the seat, and this merely required removing the seat cushion.

As the water and gasoline tanks and the muffler were removed from the body interior, it was possible to cut the side panels down in height about 6 inches, this making a very neat rear deck. The hinged cover was kept so that one could gain immediate access to the cylinder head or carbureter by raising a portion of the rear deck. A special three-compartment tank, as shown in plan at Fig. 2, was made and attached to blocks secured to the fixed portion of the rear deck by straps of sheet iron. This container replaced those formerly used and was made of heavy-gauge copper instead of galvanized iron, which had caused much trouble by deterioration and leakage, due to the chemical action of the liquids they contained. One end compartment was used for water, the design of the radiator making it neces-

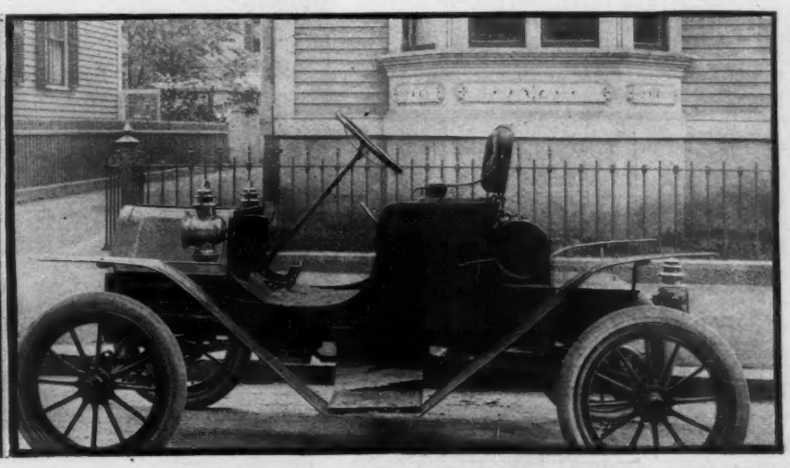


FIG. 3—RUNABOUT IN ITS ORIGINAL FORM. FIG. 4—SIDE VIEW OF ALTERED RUNABOUT, SHOWING EFFECT OF LENGTHENED WHEELBASE, CHANGED BODY DESIGN, GOOD MUDGUARD INSTALLATION. USE OF FALSE RADIATOR IN FRONT AND APPLICATION OF WHEEL STEERING GEAR

sary to carry a certain amount of cooling liquid, the capacity being about 2 gallons.

The small center tank was filled with lubricating oil, holding 2 quarts. A simple arrangement of piping enabled the oil to feed to a sight glass under the seat by crankcase compression, this replacing the old gravity feed glass cup used for cylinder lubrication and providing automatic oiling. With the old arrangement, if one forgot to turn on the feed at the cup, the cylinder did not get any oil; the new system made the lubrication automatic. The old cup had to be refilled every 25 to 30 miles; the new oiling system needed attention about once a month. The larger compartment was utilized for fuel, the 5 gallons it carried being sufficient for a run of about 125 miles under average conditions. This placing of the tank made the filling openings very accessible, added to the appearance, and insured positive feed and sufficient supply of those essentials, water, gasoline and oil.

Imitating a Radiator

The pattern for the radiator front casting was made by a local patternmaker for a very small sum, and as but one casting was to be made from it, it was not an extremely well finished piece of work. The use of the mesh imitating a cellular radiator made this such a good imitation of the average cooler that many people were deceived by it. Considerable amusement was derived by noting the chagrin of inquiring persons whose curiosity prompted them to raise the hood to inspect the power plant!

COST OF RECONSTRUCTION

	Cost.
Lengthening springs	$3.00
Angle iron, machined	2.25
Combination tank	5.00
Four mud guards	6.50
Hood	4.00
Changing radiator	2.00
Pattern for front	2.50
Casting, machined	1.25
Steering gear	2.75
Dash coil, second hand	4.00
Mesh for radiator	3.00
Painting	10.00
Miscellaneous stock, bolts, lumber, strap iron, etc	2.00
Total	$48.25

The wheel-steering device was extemporized from a discarded wheel spider for which a new rim was turned out and fitted, a piece of cold rolled shaft, a simple cast iron supporting bearing for attachment to the dash, and the bevel gear reduction set that had formerly been used on a Maxwell runabout. The mud guards were made by a local tinsmith, the running board supporting steps and fender irons were roughly formed by a cold forging process—a strong bench vise, an 18-inch monkey wrench and a little muscular energy being all that is required—from Norway iron oval stock by the writer.

Cost of Reconstruction

As the work was done by the writer in spare time during a winter, no charge is made for this item in the list of cost.

Of the items listed, the largest one, that of painting, was not absolutely necessary, as the condition of the parts was good and the new pieces could have been touched up at slight expense. It was thought better to have it painted all over, and a coach red was applied by a carriage painter on his own time, the rubbing down of the body, the removal of the old paint and the preparation of the surface having been done by the writer, which accounts for the low cost of the painting, varnishing and striping. A few incidentals, not itemized, would bring the total cost of the alteration of this antiquated type of motor car to about $50.

Money Well Spent

When one considers the materially improved appearance of the 8-year-old machine and the fact that the mechanism is in excellent condition and fit for considerable more service, it will be evident that the alterations were profitable and have materially augmented the value of an old car that was still serviceable and capable, but which lacked in appearance enough to be conspicuous. Not only were the lines improved, but the structural changes made for greater convenience, easier control and smoother riding. A certain amount of pleasure and instruction obtained while doing the work, and while the finished product cannot compare with the newer runabouts, it does not attract the caustic comment of the sidewalk critic, and one can make a trip conscious that he is not attracting more than his share of attention, this promoting a mental condition that permits one to enjoy even an old one-lunger.

Motor Car Does Good Service On Texas Ranges

AUSTIN, Tex., Dec. 22—The use of the motor car upon the larger ranches in Texas for purposes of business and pleasure has become so general in recent years that it is a subject perhaps worthy of special attention for the reason that there are many interesting and unique features connected with their operation upon these properties. There hardly is a ranch property in Texas that does not possess for the use of its owner or superintendent one or more cars. For the most part, the grazing territory is well suited for the use of motors, the country being generally of a level character, and even where highways have not been constructed the natural contour and smoothness of the country enables the cars to be operated with little interference.

A Progressive Ranchman

Perhaps the most notable ranch of Texas, from the standpoint of the use of cars thereon, is that of F. B. Rooke in Refugio county, in the upper gulf coast region. This ranch embraces 45,000 acres

TROPHIES OF THE CHASE

of land and is in a highly developed state. Mr. Rooke owns five Buick cars, which he uses for the transaction of business upon his big estate and throughout the adjacent territory, as well as for pleasure.

The ranch residence is an ideal country home. In architectural lines and arrangement it is suited for the climate, and during the summer the refreshing breezes from the gulf sweep over the wide galleries and through the spacious rooms.

The ranch garage is constructed of concrete blocks and is built for the accommodation of seven cars. Connected with it is a repair shop containing all of the necessary accessories for keeping the machines in prime condition.

Service Given by Cars

Mr. Rooke has one car that he has driven fully 125,000 miles and he says that it is still good for another 25,000 or 50,000 miles. This car, which has proved so remarkably serviceable, was for a long time used by Mr. Rooke for pleasure purposes and was known as the family car. When its long period of usage caused it to be somewhat worn in appearance, it was

Owner Uses Five Motor Cars for Business and Pleasure

turned over to the ranch superintendent for his use in making trips to various parts of the property daily.

The family conveyance is a five-passenger touring car. He also owns a small four-cylinder touring car for the personal use of his wife. The car which Mr. Rooke keeps for his personal use is a four-cylinder roadster. The son uses a medium-sized roadster. The variety of uses to which Mr. Rooke and his family, as well as the employes of the ranch, put these cars would surprise one who is not familiar with the possibilities of pleasure and the requirements of business upon a large ranch.

Plenty of Game

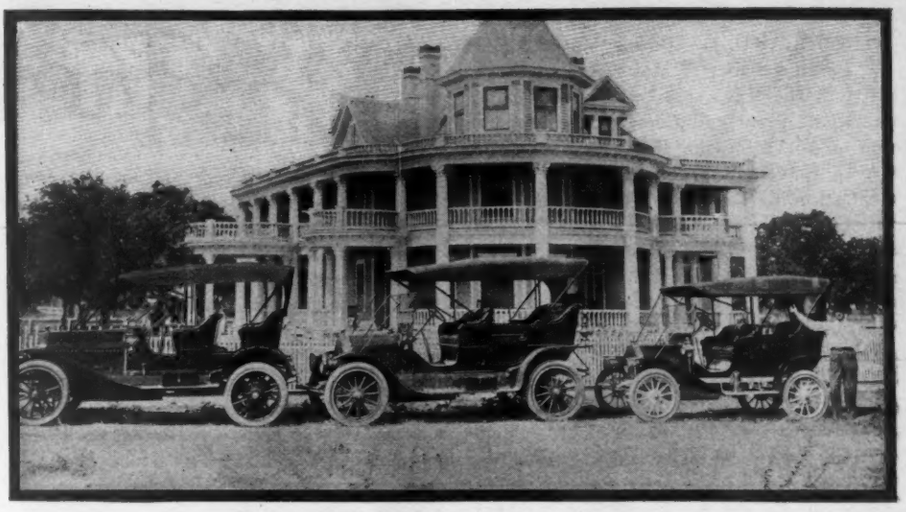
The big tract of land, upon which hundreds of head of cattle graze, is covered with a thick growth of mesquite trees and other shrubbery. This wilderness is the habitat of great numbers of deer and other wild game. Running through the low-growing mesquite are many roads which afford an easy passage for the cars.

One of the great pleasures that Mr. Rooke and his neighbors derive from the use of his cars is in hunting deer during the open season and chasing down coyotes and wolves. He says that he has killed upon his ranch during the last several months thirty-seven wolves by running onto them in his cars and shooting them.

During the winter season, a favorite pastime is to use the cars for duck shooting. The small ponds and lakes upon the ranch are visited by myriads of wild ducks and geese when cold weather begins to set in, and it is an easy matter for a man to get his fill of this character of sport by using the cars as a blind for shooting the fowls.

Value of Motor Service

Besides the manifold pleasures and great conveniences that come through the use of cars upon Mr. Rooke's and other ranches, they are of great value from a business standpoint. Not only do they serve them in carrying on the different features of the work that is constantly demanding attention upon the big landed properties, but they afford a quick means of transportation between the commercial points and the ranch headquarters. Not infrequently the machines are used for marketing products of the farms that are often run in connection with the ranches, and to bring from town needed supplies.



ROSA RANCH AND ITS MOTOR FLEET

GARAGE FOR THE ROSA RANCH CARS

TAFT AT A. C. A. BANQUET

New York, Dec. 21—President Taft was the guest of honor last night at the annual banquet of the Automobile Club of America, at the Waldorf-Astoria, attended by 700 members. Among the guests sitting with the president were General Horace Porter, former ambassador to France; Señor Don Juan Riano y Gayangos, the Spanish minister; Dr. John H. Finley, president of the City College; Melville E. Stone, general manager of the Associated Press; John G. Milburn, the Duke of Newcastle, Henry W. Taft, William Barnes, Jr., Justice Victor J. Dowling, former United States Senator Chauncey M. Depew, F. A. Vanderlip, president of the National City Bank; Walter H. Page, M. du Pulligny, representing the Automobile Club of France, and Colonel John Jacob Astor.

On the president's right were seated Henry Sanderson, president of the club; Count J. H. von Bernstorff, the German ambassador; Governor Dix, Lieutenant-General Nelson A. Miles, Judge E. H. Gary, Patrick Francis Murphy, F. M. Schmolck, representing the Nederlansche Automobile Club; Rear Admiral E. H. C. Leutz, commandant of the Brooklyn navy yard; Jacob H. Schiff, E. S. Martin, Henri Martin, representing the Automobile Club of Switzerland; former Justice Morgan J. O'Brien, Major Thomas L. Rhoads, M. Clarholm, representing the Kungl-Automobil-Klubben; Major Archibald W. Butt, the president's aid, and David H. Morris.

Of course the president discussed good roads. He declared with much emphasis that the making and maintenance of good roads should not devolve upon the national government, except possibly as a last resort. He was convinced, he said, that the federal authorities had ample authority to construct interstate roads as well as improve interstate waterways, but that there were many other calls on the national treasury, and that it would be far wiser to have roads constructed by the counties or by the states.

BRITISH BODIES FORM COUNCIL

London, Dec. 13—Efforts to bring together the leading motoring organizations in the United Kingdom have at last been partially successful, the National Motor Council having been formed and including the Auto Cycle Union, Commercial Motor Users' Association, Institute of British Carriage Manufacturers, Institution of Automobile Engineers, Irish Automobile Club, London Motor Cab Proprietors' Association, London Omnibus Owners' Association, the Royal Automobile Club and associated clubs, Scottish Automobile Club and the Society of Motor Manufacturers and Traders. The only one to hold out is the Automobile Association and Motor Union, made up of the recent consolidation.

The Readers' Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

A RULE OF THE ROAD

CLEVELAND, O.—Editor Motor Age—Being a reader of Motor Age am interested in the legal side lights department, and would greatly appreciate any information on the following subject: There is a law in Cleveland prohibiting any vehicle from standing facing the current of traffic. Is this a city or a state law? And in either case would not a motor police patrol be amenable to such a law the same as a private citizen, and if not, why not? What is the opinion of Motor Age?—Tom A. Seymour.

It is one of the rules of the road and generally enforced in most of the large cities in business districts, that no vehicle can stand with the left wheels to the curb. Motor Age fails to see why a police patrol should be allowed privileges denied other users of the road.

A FOREIGN PERFORMANCE

San Francisco, Cal.—Editor Motor Age—I am enclosing for the information of Motor Age a page from the Royal Automobile Club Journal of Great Britain, issue of September 22, 1911, giving the details of a run from London to Edinburgh and back, made by a 48-horsepower—six-cylinder—Rolls-Royce car, in which, you will observe, that while this car had six cylinders—4½ by 4¾—and represented a total running weight of 5,257 was able to do 24.32 miles per gallon.

It would be very interesting to hear the comments of Motor Age in regard to this performance, as the average six-cylinder car with which I am conversant of practically the same horsepower, and of such high-grade makes only does about 9 to 10 miles to the gallon, and a 24-horsepower car which I drive can accomplish only about 12½ miles at the same average speed as this Rolls-Royce.

It seems a strange thing to me that in all mechanical constructions this country has to lag from 4 to 5 years behind the European makers. This is evidenced by the use of the Knight engine abroad for 4 years before it was adopted in this country, the adoption of wire wheels by a great many English and continental makers, and by the numerous cars being put out in England and on the continent today, with slide and rotary valve engines, where this type of engine does not seem to be even experimented with in this country. How long are our manufacturers of motor cars going to be content to bring up the end of the procession?—L. I. Scott.

A complete report of the Rolls-Royce trip was published in Motor Age. There are several reasons for the high efficiency shown and low consumption of gasoline. The car was required only to average 20 miles per hour, and it was possible to do much coasting because of the good roads and the rolling nature of the land. The foreign manufacturer has done more in the matter of fuel economy than the American maker because the price of gasoline, or petrol as it is called in England, is much higher than in America. In Europe it is a great aim to see how many miles per gallon a car can average in a tour, whereas in America this is rarely thought of.

SPECIAL LIGHT WIRING

Chicago—Editor Motor Age—Will Motor Age answer through the Readers' Clearing House the following questions:

1—I have a Splitdorf magneto on my two-cylinder model LD Maxwell which I oil at the rate of one drop for every 100 miles. Is this enough? Is it possible to oil a magneto too much?

2—Some time ago I had a mechanic look over the timing of my motor, which fired 1½ inch when the spark lever was advanced. This changed to ¾ of an inch. Is this right for a motor with 4½-inch bore and 4-inch stroke?

3—Will Motor Age please give me a wiring diagram for electric lights for my car, using a two-point switch for the headlights and a three-point switch for the side and tail lights, also including push button for Klaxonet horn located on the right side of the car? I want the wires so spliced together that there will be but four terminals to connect with the battery, two being for starting the motor.

4—Is it advisable to change Rushmore gas lamps to electric? Will they be as dust tight as the regular electric headlight?—P. S. Snater.

1—No oil is needed on the magneto, as the bearings are all ball bearing and packed in hard oil. Too much oil will cause missing and fouling of the distributer.

2—A sparking distance of ¾ inch is sufficient under ordinary circumstances.

3—The wiring for the system you wish is shown in Fig. 1. I is the ignition switch, L 2 the headlight switch, and L 1 a special switch by which either side or tail lights, or both together, may be lighted.

4—Acetylene lamps can readily be changed to electrics by any of the special fittings on the market. The openings necessary for gas lamps of course will allow a certain amount of dirt to enter.

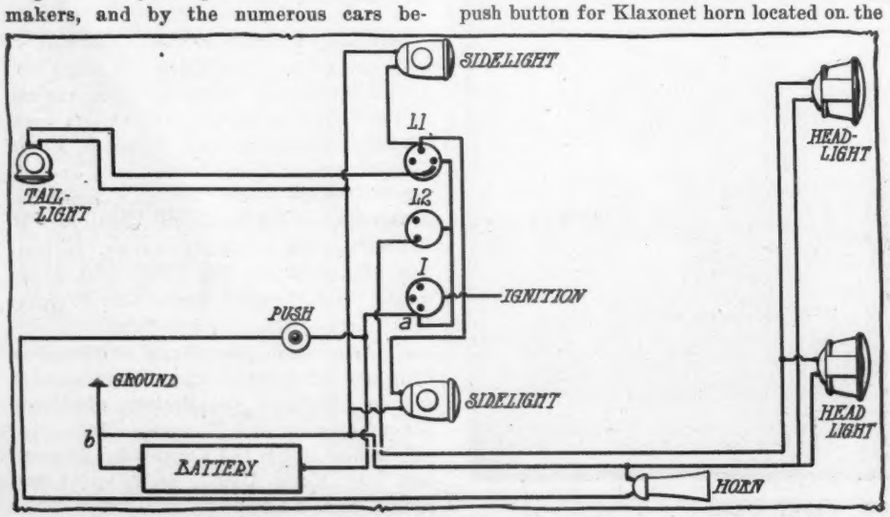


FIG. 1—SYSTEM FOR LIGHTING IGNITION AND HORN ON SAME BATTERY

FAVORS LIGHTENING PISTONS

St. Cloud, Minn.—Editor Motor Age—In the Reader's Clearing House, December 7, I note the reply of Motor Age to R. E. Barton, Bridgeport, Conn., wherein boring holes in the walls of the piston is approved, and Mr. Barton advised to send same to the factory. Allow me to state Motor Age is in error on this point. I agree that in the event the pistons are not light enough, properly lightening the pistons will materially increase the speed of the motor and also make it run steadier.

In my research work I have found it is impossible to have the pistons and rods too light and have any factor of safety left, and that the ultimate speed of the motor, all things considered—resistance to inlet charge, exhaust gases, etc.—will depend upon the weight of the reciprocating parts, as the resistance to each reversal at high speed must be enormous. As to these holes in the walls of the pistons, I would say their presence would be extremely detrimental to the motor, and for this reason the compression and also the efficiency to pack the charge, that is, to prevent its escape by the piston, depends on the surface of the piston in direct contact with the walls of the cylinder, with

Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

the film of oil really the packing agent, and its fit therein; and all the rings in kingdom come will not hold the charge unless it has this surface. Therefore, the long piston without any of the now obsolete recessing around the piston pin is as good as this part can be made. I would suggest reboring the cylinders, casting new pistons of the proper weight and proper fit, as the only remedy.—George McCadden.

EXPERIENCES REQUESTED

Malden, Mass.—Editor Motor Age—Like many others, I have trouble with carbon deposit collecting on the piston heads and on the top of the cylinders of my motor, and find it rather an expensive operation having the engine dismantled to remove it; besides, I do not like to have the many adjustments of the motor disturbed.

Having noticed for some time the advertisements in the Motor Age of Michener's chain carbon remover I should like to ask if some of the readers who have used this device will state, through the Readers' Clearing House columns, whether it does what is claimed, that is, does it remove this deposit from the piston heads and the top of the cylinders?

On account of the low gravity gasoline at present on the market, there seems to be a greater accumulation of carbon, and it has now become an important matter of finding the easiest, quickest and cheapest way of removing the carbon deposit.—Worthington Cornell.

Motor Age would be glad to hear the experiences of readers with this device.

PRAISE FOR THE POPE

Chattanooga, Tenn.—Editor Motor Age—I read with much interest "A Racing Comparison" in the Readers' Clearing House of Motor Age December 7. Motor Age completely overlooked the splendid performance of the Pope-Hartford at Jacksonville last winter. The Pope-Hummer driven by Disbrow established world's records for 150 to 300 miles regardless of class. Two Nationals competed in this race but failed to catch the fleet Pope. Disbrow in this same car made the American hour record of 81.6 miles in the 60 minutes.

Since the reply in Motor Age was written the Pope-Hartford has distinguished itself still further by its fine running at Savannah. L. A. Disbrow in Pope was the first and only American car to finish the grand prize race of 411 miles. The Pope ran very consistently in the Vanderbilt also. In comparing the Pope's performance at Savannah with other cars it must be remembered that this car has a piston displacement of only 389 inches. The Lozier's piston displacement is 544 and the Benz 920 inches—E. D. Richmond.

Motor Age's reply to the question asked by the Madison, Wis., reader, to which reference is made by Mr. Richmond, was based on road performances, which were not individualized.

SCHEBLER ON TWO-CYCLE MOTOR

Collinwood, O.—Editor Motor Age—I notice in looking over my old Motor Age copies that "A Subscriber" in a May number asks about using a Schebler carburetor on an Elmore car. In case there happen to be any future inquiries I will say that a Schebler acts very well on the Elmore, as the gas distributor prevents any back pressure on the carburetor. I never have noticed any appreciable saving of gas over any other reputable make of carburetor. A Schebler will work on any type of two-cycle motor very well with the exception of a two-port type, which requires the introduction of a check valve between the carburetor and motor. This causes sluggishness on very high speeds unless adjusted to a hair. —T. A. Seymour.

TO CHANGE HUPMOBILE TO DUAL

Pleasureville, Ky.—Editor Motor Age.—Through the Readers' Clearing House will Motor Age kindly answer the following questions:

1—If an engine geared 4 to 1 can produce 20 horsepower turning strain to the rear wheels, how many more horsepower could the same engine deliver at the same speed geared 4.8 to one?

2—Is there any way to attach the batteries for starting a Hupmobile and what would installation of same cost? —W. M. & S. G. Onan.

1—The gearing of the transmission does not affect the power of the motor. Consequently, the change you suggest will neither increase nor decrease the motor power. It will, however, increase the pulling power of the car as a whole. That is, the motor can pull the same loads with less effort, and can pull heavier loads and take sand and hills better, for it will be running faster at the same car speed. The ratio of increase will be as 1.2 is to 1.

2—Though it is entirely possible to change the single system on the Hupmobile to a dual system, it is a matter of doubt that the change is necessary or worth the trouble. If the change is desired on account of hard starting, this can be remedied by overhauling the magneto or improving the carburetion. To use a battery for starting, the best method is to install a Bosch synchronous coil in addition to the battery and connect up as indicated in Fig. 5 of the Readers' Clearing House for November 2. Another method has been suggested, but this is more expensive and more complicated. For this second method you will need batteries, spark coils, distributer and switch. You can use either a two-point battery switch in addition to the one now in service, or discard the one in use and install a switch which has provisions for battery, magneto and off positions. The high-tension wiring for the battery system may be run direct to the plugs from the coil or to the high-tension distributer on the magneto. The connections for such a change are shown in Fig. 2, in which the present wiring is shown in full lines and the proposed new wiring in dotted lines. You probably will find it necessary to arrange for shifting the commutator of the battery system to advance and retard the spark, as the battery system is not as nearly automatic as is the present magneto system. The cost of the change will depend upon the kind of battery, etc., you intend to use.

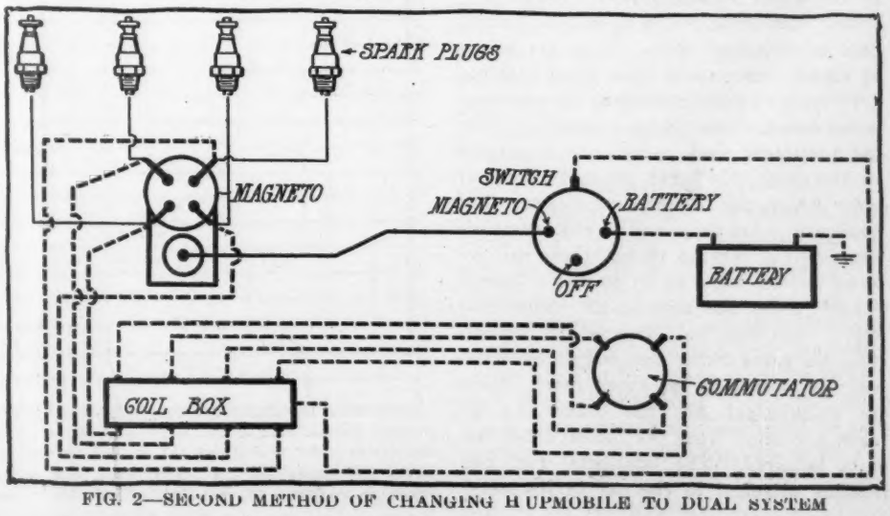


FIG. 2—SECOND METHOD OF CHANGING HUPMOBILE TO DUAL SYSTEM

Card System of Ford Service Department

Different Cards Used in New York Plant Are Illustrated and the Uses of Each Given for All of the Departments

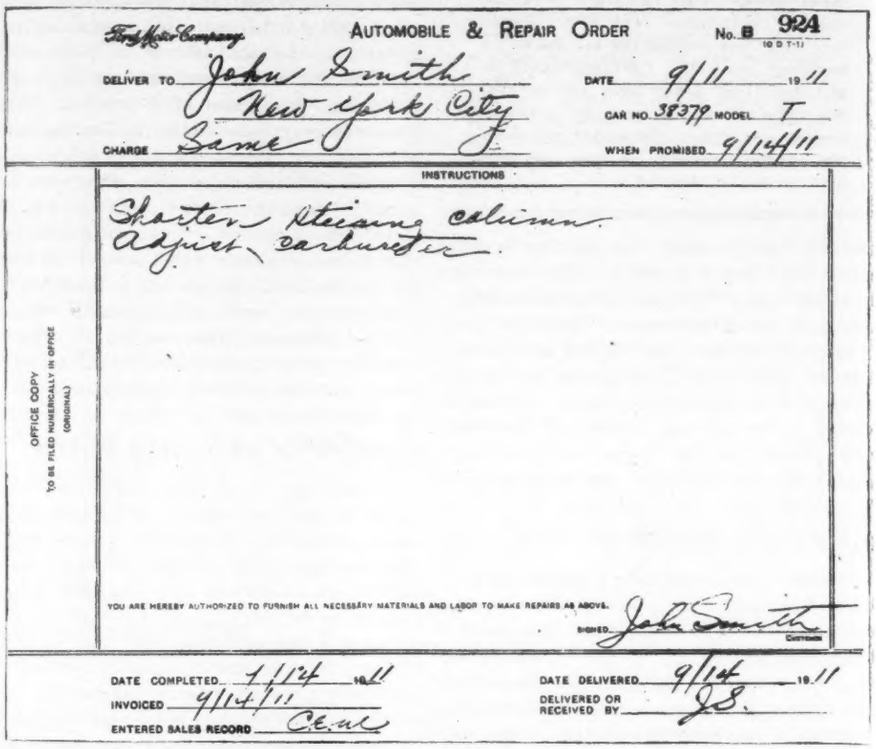
Part II—The System Used

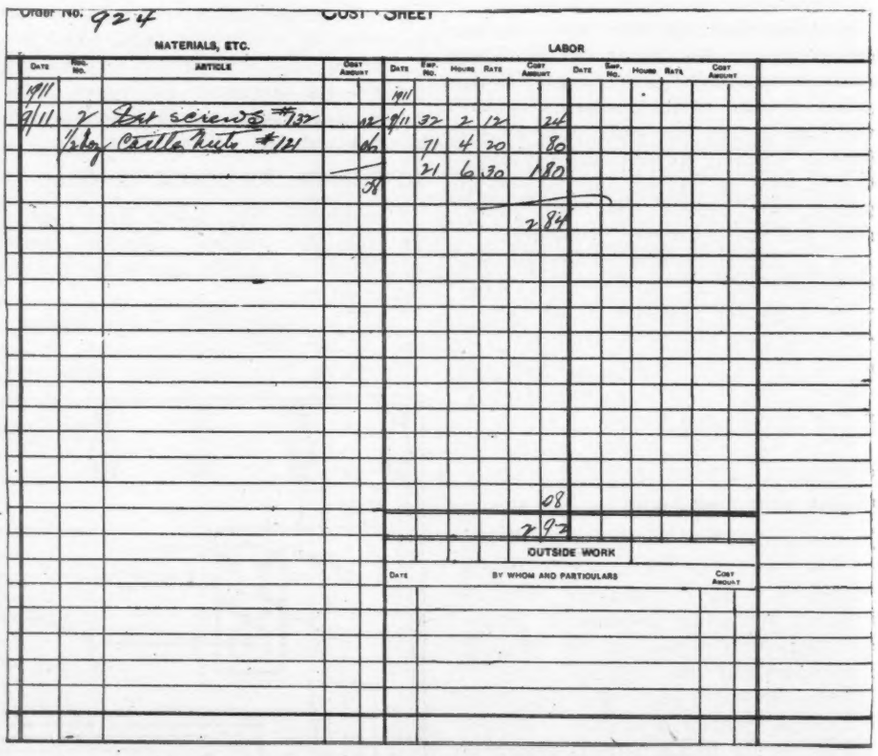
IN part 1 of this article the Ford service station in Long Island City was described as to its structural details, arrangement of the floors and the like. In this part it is proposed to show how this big plant is handled, so that repairs are systematically undertaken, costs kept accurately on each job and so on. In other words, it is to be an investigation of the Ford service system.

Every concern of any size must make use of a system of some sort or other, and the more efficient the latter becomes, the less red tape is included in its makeup. And a representative officer of any one of these concerns will tell you that his firm has a good system, or method of handling its business and for getting results. Below are outlined the Ford Motor Co.'s system methods, which are used by it at its Long Island service station, and which are largely copied from its Detroit factory.

The method of handling repairs at this station does not differ widely from that employed by other motor car concerns. When a car is to be repaired it is brought into the building on the main floor. A tester then takes charge of it and tests it out for the trouble, this being done by driving it up the incline at the side of the building. On returning again to the main floor, the tester makes out a shop order in triplicate, Fig. 1. Under the heading of instructions on this order are listed the repairs which he deems necessary. The order then is presented to the customer for his approval, and if he is willing to have the work done as specified thereon, he signs the original order. See Fig. 1-a. This original then is sent to the office and is filed numerically. From it the actual cost of the work is made up. This is done on the back under the heading "Cost Sheet," Fig. 1-d. The yellow duplicate and the cardboard triplicate are then put in a metal holder provided for the purpose and are attached to the car, accompanying it to the repair department.

Only the work which is entered on the card is performed there. If, in the course of repair, other parts than those specified are found to need attention, the customer is notified first, and if his consent is given, the additional work to be done is entered on the card, this being the only form of order which the foreman recognizes. The duplicate is his copy, and if any materials are required for the repair, these are entered on the back of it on the "Charge Sheet" under the heading of "Materials, Etc." See Fig. 1-c. This is the requisition, all parts being designated by number. It is sent to the stock room. Here the stockkeeper fills the order and he takes a receipt from the foreman for the parts required. The triplicate, Fig. 1-c, remains attached to the car in its metal





FIGS. 1-A AND 1-D—FORMS OF FORD SERVICE SYSTEM

These white forms are on good quality paper 9 1/8 inches long and 7 5/8 inches high. One is printed on one side of the sheet and the other on the reverse side. The form 1-A is filled out by the tester after trying out the car which has to be repaired. It is then signed by the car owner. Form 1-D shows the cost. This dual form is kept in the office. The vertical depth of these cards is reduced to facilitate illustrating. This dual form is on white paper

bracket or holder until the work is completed and the car delivered to its owner.

A car on being completed is returned to the first floor; the tester takes charge of it again and tries it out to see that the work specified has been satisfactorily done. If it does not meet with his approval, the car is returned for further adjustment.

In this connection it might be mentioned that the same man tests the machine after the work is completed as did in determining what repairs were needed, so that he is in a position to readily ascertain what improvements have been made. After passing the final inspection, the job is signed for by the tester, and the customer is notified that his car is ready for delivery.

Ford Motor Company. AUTOMOBILE & REPAIR ORDER No. B 924 (O D T-B)

DELIVER TO John Smith
Nyc

DATE 9/11 19 11

CAR NO. 38379 MODEL T

CHARGE Same

WHEN PROMISED 9/14/11

INSTRUCTIONS

Shorten Steering Column
Adjust carburetor

FOREMAN'S COPY
To be Sent to Foreman, When Returned to Office to be Filed Alphabetically Under Customers Name (DUPLICATE)

HAVE EXAMINED THE CHARGES AMOUNTING TO $, AS SHOWN ON THE BACK OF THIS SHEET AND FIND SAME CORRECT

SIGNED Customer

DATE COMPLETED 19 DATE DELIVERED 19

INVOICED DELIVERED BY

ENTERED SALES RECORD

Order No. 924 CHARGE SHEET

MATERIALS, ETC.				LABOR											
Date 1911	Req. No.	Article	Sale Amount	Date 1911	Emp. No.	Hours	Rate	Sale Amt	Date	Emp. No.	Hours	Rate	Sale Amount		
9/11	2	Set Screws #137	10	9/11	32	2	24	48							
	6	Castle Nuts #171	30		71	4	40	160							
					21	6	60	360							
				Matl				40							
								608							
				OUTSIDE WORK											
				Date	By Whom and Particulars								Sale Amount		
			40												

FIGS. 1-B AND 1-E—FORMS IN FORD SERVICE SYSTEM

These yellow forms are on good quality of paper 9 1/8 inches long and 7 5/8 inches high. One is printed on one side of the sheet and the other on the reverse side. This form is for the foreman of the repair department. The reverse side forms a charge sheet

The yellow duplicate of the order, Fig. 1-b, which is the foreman's copy, as already stated, also is sent to the office after the completion of the work and is filed alphabetically under the customer's name. Fig. 1-e shows the reverse side of this same card, and it is called the charge sheet. From it the customer's invoice is made. Besides being used as a requisition for material, it is also used for totaling the time required for the work, as readily seen under the labor columns.

At the office the materials listed and the labor are copied from this duplicate onto the original or cost sheet already referred to. On this latter the actual cost of parts and labor is figured, and by referring also to the charge sheet, the net profit on any particular job is merely a matter of subtraction. All values and entries on these several cards shown in the illustrations are purely fictitious and they serve merely to illustrate the maner in which the system is carried out.

The stockroom methods will be discussed next. This department is back of the office, and the two are separated by a hall which runs crosswise of the building. A stairway leads to the hall from the main floor and to it the customer who wishes to purchase any part of the Ford car comes. The order for the parts which he desires is made out on the sales order blank, and it is also in triplicate. Figs. 4-a, 4-b and 4-c. He then takes the original to the opposite side of the hall to the sales window where it is priced and the settlement made. The original is then filed in the office, while the duplicate, Fig. 4-b, is used as a stockroom requisition and also as a shipping order. After the order is filled, this duplicate is returned to the office, priced, checked with the original and then filed alphabetically by the customer's name. The triplicate, Fig 4-c, is enclosed with the goods.

Within the stock room are long rows of bins with aisles between them. In these bins are stored the smaller parts of the Ford car. Every bolt, nut, spring clip, valve spring or other part is kept here in an individual compartment under a separate catalog part number. Back of the bins the heavier and more bulky parts, such as radiators, wheels, mud-guards, etc., are stored on shelves and in racks. A card, Fig. 3, is attached to each bin. This card shows at a glance the exact number of parts contained therein. When any are put in or taken out, the fact is noted, as well as the date, and the balance is computed and set down. Reference to the card in question will make these facts plain.

The maximum and minimum amount which the bin is to contain also is entered on the card in the upper right hand corner. When the balance shows the number to have reached the low mark, in this particular case twenty-five, an order for more parts of this kind is immediately sent to the factory.

Ford Motor Company

AUTOMOBILE & REPAIR ORDER
INSTRUCTION CARD

No. B 924 (O D T-3)

DELIVER TO John Smith
M.F.C.

DATE 9/11 19 11

CAR NO. 38379 MODEL T

CHARGE Same

WHEN PROMISED 9/14/11

INSTRUCTIONS

Shorten steering column
Adjust carburetor

FIG. 1-C—FORM USED IN REPAIR DEPARTMENT OF FORD SERVICE BUILDING

This form is 9 1/8 inches long and 7 5/8 inches high. It is printed on brown cardboard and only one side is used. The card is attached to the car during repairs

As a check on, and also as a permanent record of the stock fluctuations in the various racks and bins, cards similar to Fig. 2 are filed so as to be readily accessible. These cards have entered on them the same information as is found on the stock cards attached to the bins.

Back of the stock room, but separated from it by a wire-mesh screen, is the receiving and shipping room. When a shipping order is received by one of the shipping clerks, the goods to go out are put in a sending bin, checked by another clerk, then placed on the wrapping table, packed for shipment and sent out.

One item which makes for the saving of transportation expenses has been recently adopted. Cars are now being shipped from the factory to the Long Island plant in the knock-down form, being later assembled there. This permits of the shipment of ten cars in a single freight car, whereas up to this time only three completed machines could be shipped in a car.

Another feature, which is of interest chiefly to the customer, is the provision made for the safeguarding of the equipment of the car while it is undergoing repair. The car on entering the plant for overhauling or other work has all its removable equipment and accessories taken off, and these are placed in a large canvas bag, tagged with the owner's name and placed in a locker. They are kept here until the car returns to the main floor for delivery.

PART No. 92 MIN. AMT. 100/25

BIN No. 31

NAME Differential Gear

DATE 191..		ENTERED FROM	RECEIVED	ISSUED	BALANCE
Mar	30	9417	100		100
Apr	6	249		8	92
	9	387		6	86

FIG. 3—FORM USED IN FORD STOCK ROOM

This card is 4 inches wide and 5 1/2 inches high. It is good grade cardboard and is attached to the stock room bin No. 31, in which the differential gears for the cars are kept in stock. The reverse side is the same, thus doubling its capacity

Maximum 100 Size
Minimum 25 Unit Rear Axle ARTICLE Differential Gear
Part No. 92
Bin No. 31

DATE 191..		UNIT COST OF GOODS RECEIVED	ENTERED FROM	RECEIVED	ISSUED	BALANCE	DATE 191..	UNIT COST OF GOODS RECEIVED	ENTERED FROM	RECEIVED	ISSUED	BALANCE
Mar	30		9417	100		100						
Apr	6		249		8	92						
	9		387		6	86						

FIG. 2—THIS PASTEBOARD FORM IS 8 INCHES LONG AND 5 INCHES HIGH. BOTH SIDES ARE USED

In this illustration is shown the main side of the form and Fig. 3 the reverse side. This is a stock room form which is kept in the main office It is a check on part 92 kept in bin 31 of the stock room. The reverse side is but a combination of it

The service department system above outlined is only one of a number now in operation in and around New York, but it illustrates how one large concern has attempted to do away with useless complications. There is a happy medium between too much and too little system, which fact is borne in mind in all well organized plants.

An Aeroplane Story

NOT so many years ago Jules Verne startled boyhood with the account of a trip around the world in 80 days. Herbert Strang does the journey in 7 days just as plausibly as Verne did it in 80. Strang has even a reputation as a writer of adventure stores for boys, but "Around the World in Seven Days" will be enjoyed as much by their elders as by the youthful readers.

The story lies in the aeroplane flight of a young naval lieutenant and his mechanic from England to the Southern Pacific to rescue the hero's father and brother from the hands of cannibals in the Solomon islands. Needless to say, the mission is accomplished, the aviators then continue their trip and circumaviate the globe—to coin a phrase—in less than a week.

Naturally, enormous speed was required, but the hero had thoughtfully invented a biplane capable of a speed of nearly 200 miles an hour. The engine was a compound gas turbine, concerning the exact construction of which the author seems to be a bit hazy. The really improbable part of the machine was that it carried a generator and storage battery which, in addition to supplying a searchlight, heated an electric radiator to keep the aviators warm while flying through the high altitudes at top speed, a feat which transcends Edison's wildest dreams.

Thrills come in such rapid succession throughout the story that they tread upon one another's heels. The prologue has a cyclone and shipwreck among cannibals; the first chapter follows with an aeroplane wreck; a drowning aviator is rescued from the sea in the second; there is a fight for life with smugglers in the sixth; a siege by cannibals in the ninth and another by pygmies in the twelfth chapter, followed by a rescue from torture in the thirteenth. There are other adventures sprinkled through the 282 pages of the book for good measure. In one of these the love element is introduced when the intrepid airman rescues the captain's pretty daughter from a burning vessel in mid-ocean and carries her to land in his biplane. This results, as may be expected, in a very pretty little love affair. George H. Doran Co., New York, $1.25.

Ford Motor Company. SALES ORDER No. E 4266 (G S T-1)

SHIP TO George Williams, New York City
DATE Apr. 26 191 1
SHIP VIA Self
CHARGE Same
WHEN Apr. 26.

STOREROOM REQUISITION AND SHIPPING RECORD (To Be Returned to Office Orders with Originals and Then Filed Alphabetically by Customers Name (DUPLICATE))

QUANTITY ORDERED	QUANTITY SHIPPED	PART NO.	ARTICLE	PRICE	AMOUNT
1	1	387	Hub Cap	75	75

CUSTOMERS ORDER ✓
INVOICED ✓
ENTERED SALES RECORD ✓
DATE SHIPPED Apr 26 191 1
SHIPPED BY

Ford Motor Company. SALES ORDER No. E 4266 (G S T-1)

SHIP TO George Williams, New York City
DATE April 26 191 1
SHIP VIA Open Car
CHARGE Same
WHEN Apr 26

OFFICE COPY TO BE FILED NUMERICALLY IN OFFICE (ORIGINAL)

QUANTITY ORDERED	QUANTITY SHIPPED	PART NO.	ARTICLE	PRICE	AMOUNT
1	1	387	Hub Cap.	75	75

CUSTOMERS ORDER ✓
INVOICED ✓
ENTERED SALES RECORD ✓
DATE SHIPPED Apr 26 191 1
SHIPPED BY

Ford Motor Company. SALES ORDER No. E 4266 (G S T-1)

SHIP TO George Williams, New York City
DATE Apr. 26 191
SHIP VIA Self
CHARGE Same
WHEN Apr. 26

PACKING SLIP TO BE ENCLOSED WITH GOODS (TRIPLICATE)

QUANTITY ORDERED	QUANTITY SHIPPED	PART NO.	ARTICLE
1	1	387	Hub Cap.

CUSTOMERS ORDER
CHECKED BY E.L.D.
PACKED BY R
NO ALLOWANCE MADE FOR SHORTAGE UNLESS THIS SLIP IS RETURNED WITH FULL PARTICULARS, ETC.

FIGS. 4-A, 4-B AND 4-C OF THE FORD SERVICE SYSTEM

These forms are on paper measuring 9 1/8 inches long and 7 5/8 inches high. Fig. 4-A, the top illustration, is on pink paper, Fig. 4-B in the middle is on blue paper, and Fig. 4-C, at the bottom, is on white paper. The vertical depth of all three is reduced for convenience in illustrating. These are triplicate orders for stock room parts. The original 4-A is filed in the office, 4-B is used as a stock room requisition and shipping order, and 4-C is enclosed with the part when it is shipped to the customer

The 1912 Northway Unit Power Plants

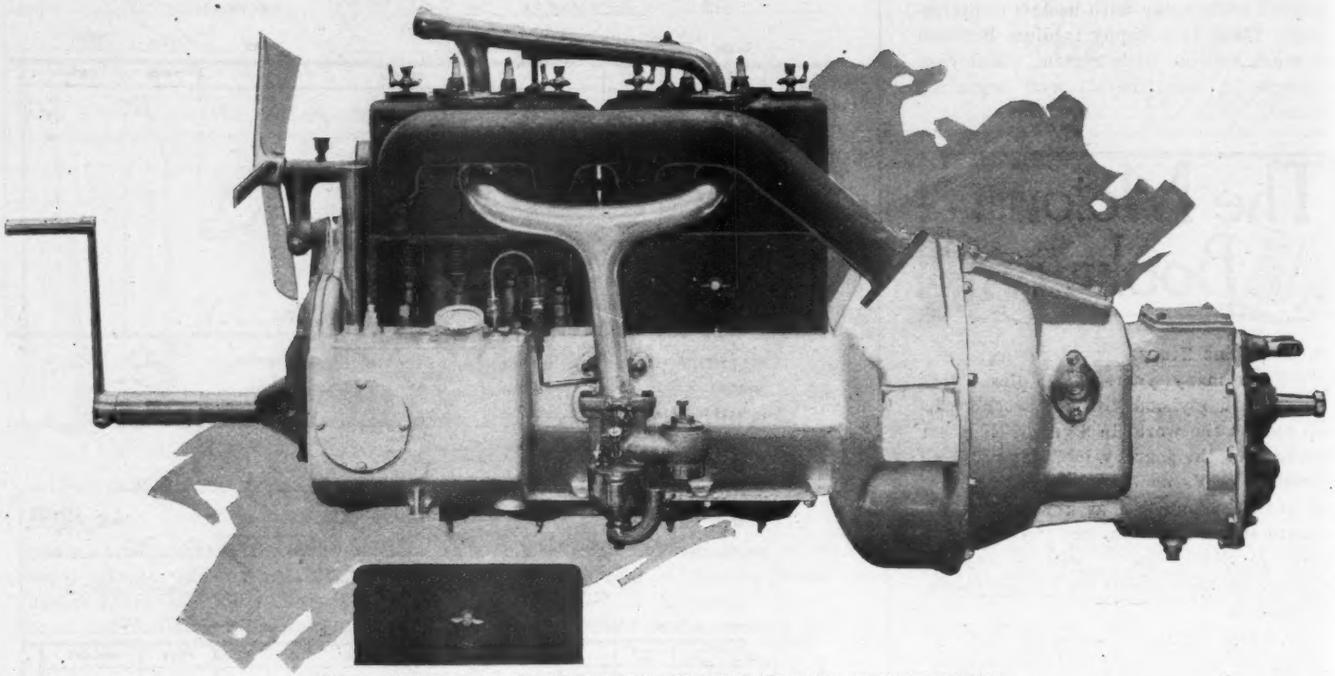


FIG. 1—LEFT SIDE OF STANDARD NORTHWAY UNIT POWER PLANT

THE Northway Motor Mfg. Co., of Detroit, Mich., has within the past year moved into its new plant, which was designed and built especially for the manufacture of motor car engines, clutches and gearsets.

Unit power plants comprising a four-cylinder water-cooled L-type motor, a leather-faced cone clutch and a selective sliding transmission gearset are the features of the Northway line of 1912. These are, with a few exceptions, almost identical in design, and made in three sizes having the following dimensions:

Model	No. of Cyls.	Bore.	Stroke	Valves
15	4	4	4	1⅝
19	4	4⅛	4⅜	1¾
26	4	4½	5¼	2

Though there is a marked structural similarity of all three sizes of the Northway motors, a close comparison will show a few characteristic differences. The model 19 and 26 motors are identical in design, but the transmission gearset of the model 26 is equipped with ball bearings throughout; while the countershaft of model 19 is mounted on plain white metal bearings. Model 15 has a transmission gearset similar to model 19, but the motor design differs in that the crankcase is divided horizontally and contains a

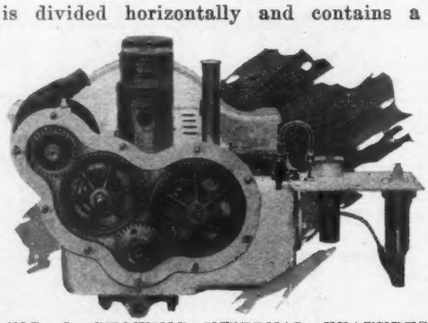


FIG. 2—SHOWING INTERNAL FEATURES

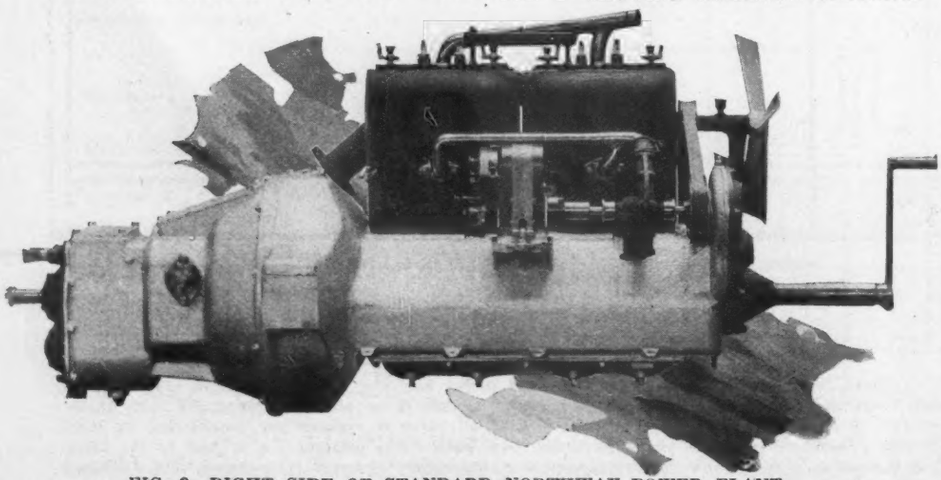


FIG. 3—RIGHT SIDE OF STANDARD NORTHWAY POWER PLANT

circulation oiling system; while models 19 and 26 motors have barrel-type crankcases and non-circulating force-feed splash oiling systems. Another difference is that the model 15 motor has mushroom valve-lifters, and the other motors have a roller design.

Cylinders Cast in Pairs

The cylinders of all the Northway motors are cast in pairs with integral valve chambers, waterjackets and pushrod bosses; the latter being contained in a chamber in which the valves are enclosed when a readily removable plate is in place. With this construction the pushrods are more substantially secured than when attached to the aluminum crankcase, and when the cylinders are removed the pushrods come off with them. By inclosing the valves, dust and dirt is eliminated from the bearing surfaces, wear is reduced and lubrication is facilitated, so that longer life and noiseless operation should result. Another advantage is the increased neatness and simplicity promoted in the appearance of the motor.

Valves are of the bevel-seat type. They operate in removable guides that are pressed into place, so that new guides may be fitted should wear take place. Adjustments also are provided on the ends of the pushrods for the purpose of regulating the space between them and the ends of the valve stems.

Pistons are of generous length and have three eccentric compression rings arranged above the piston pin, the slots in the rings being prevented from lining up by pins which keep the rings from turning. There is one oil groove at the bot-

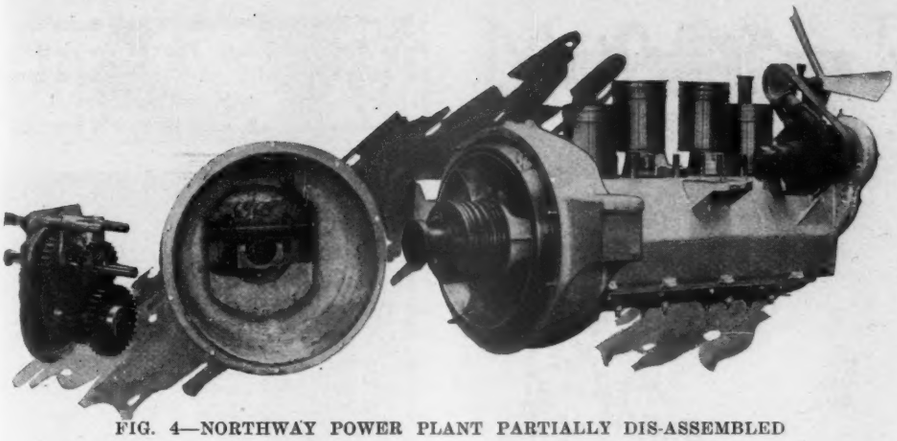


FIG. 4—NORTHWAY POWER PLANT PARTIALLY DIS-ASSEMBLED

tom of each piston to aid in the lubrication of the cylinder walls and the piston pin is hollow, hardened and ground and anchored, at one side, in the piston.

Drop-forged connecting rods of H-section are employed which have a non-adjustable bronze bushing at the upper ends and die-cast split babbit bushings at the lower ends. Shims are provided to facilitate the adjustments of the lower end bearings. A feature of the die-cast bushings employed in this motor is the ingenious method employed in securing the bushing from turning. This is done by cutting a keyway-like groove in the rods and journal boxes; and casting a keylike boss integral with the bushings, which fits into the groove or keyway. This eliminates the use of the several brass studs most generally used. There are openings in the connecting rods above the piston-pin and crank-pin bearings, to admit oil for their lubrication; and scoops are provided on the lower ends of the rods which feed additional oil to the crank-pins. Two bolts, one on either side, secure the lower halves of the connecting rod bearing-caps.

Wyman & Gordon Crankshaft

The crankshaft is a heavy heat-treated drop forging made by Wyman & Gordon. It is supported by three large bearings lined with die-cast white metal bushings; and the bearing surfaces of the shaft are ground to size. The bushing at the front end of the shaft is mounted direct in the crankcase; the center bearing consists of a cast iron journal box secured by two bolts that pass through the top of the case and screw into a forged iron cleat; and the bearing of the flywheel end is journalled in the end plate of the case. Both the oil throwing ring and the flange to which the flywheel is bolted are forged integral with the shaft.

A drop-forged camshaft also is used whose cams are forged integral therewith. The bearing surfaces and the faces of the cams as well are ground to size and contour, and the shaft is supported in three bronze bushings.

All of the engine gears are of cast iron, except the one on the crankshaft, which is of steel; and all have helically or spirally-cut teeth which tend toward spirally-cut teeth that operate noiselessly.

The crankcase is of cast aluminum, and of the barrel type in the two larger models. By the barrel type is meant that the case is substantially a one-piece structure into which the crankshaft is inserted through one of its ends. In the two larger motors, which have a non-circulating splash oiling system, the oil reservoir is located at the left forward side of

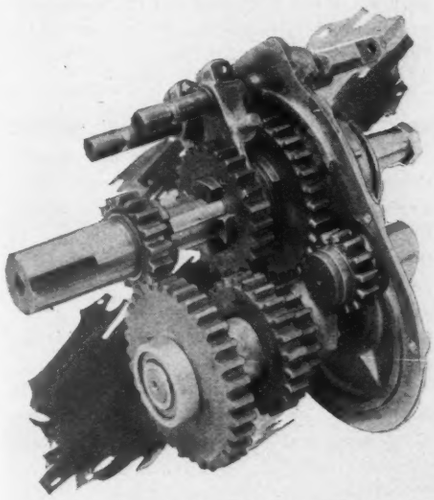


FIG. 5—NORTHWAY GEARSET

the case and cast integral therewith; while in the smaller motor, with its circulating oiling system, the oil reservoir is located below the splash compartments in the detachable lower portion. There is, however, a plate at the bottom of the barrel-type crankcase which contains the splash basin; this also is readily removable for inspection or adjustment of connecting rod bearings, etc. The forward end of the crankcase partly houses the engine gears, which are thoroughly inclosed when the cast iron gearcase cover is in place. Provisions are made at the top of this cover for adjustably mounting the fan.

Features of Oiling System

In the oiling system of the larger motors a plunger pump, contained in the oil reservoir, forces the oil from the reservoir into the crankcase, where a splash level is maintained in the basins at the bottom of the case. There are scoops on the bottom of the connecting rods and these not only scoop oil into the connecting rod big end bearings, but splash the oil around so that there is a constant mist of it in the case while the motor is in operation. This mist of oil keeps the cylinder walls and all integral mechanisms thoroughly lubricated. The case is so designed that a uniform level is maintained in each splash basin at all times, regardless of the grade on which the car travels.

The plunger pump, Figure 7, is a simple design driven by an eccentric cam and spiral gearing from the motor camshaft. The stroke of the pump may be readily adjusted from the outside of the case, and a sight-feed glass is arranged near the oil reservoir to show how fast the oil is feeding. This sight-feed may be easily arranged on the dash of a car if desired. The pump is so designed and arranged in the reservoir that its removal could be accomplished very easily.

To Cool the Motor

The fan is a three-bladed aluminum casting with a hardened and ground steel shaft supported in a long plain bearing of the cast iron bracket. The blades of the fan are designed on a helical curve found most efficient in aeroplane propeller work. A flat leather belt drives the fan. The water pump, which is a centrifugal design with a die-cast aluminum casing, is accessibly mounted on the right forward end of the motor just back of the large fan belt pulley. Attention is called to the simplicity of the short direct water manifolds and connections.

Immediately behind the water pump, and likewise on a bracket, cast integral with the case, is mounted the magneto of

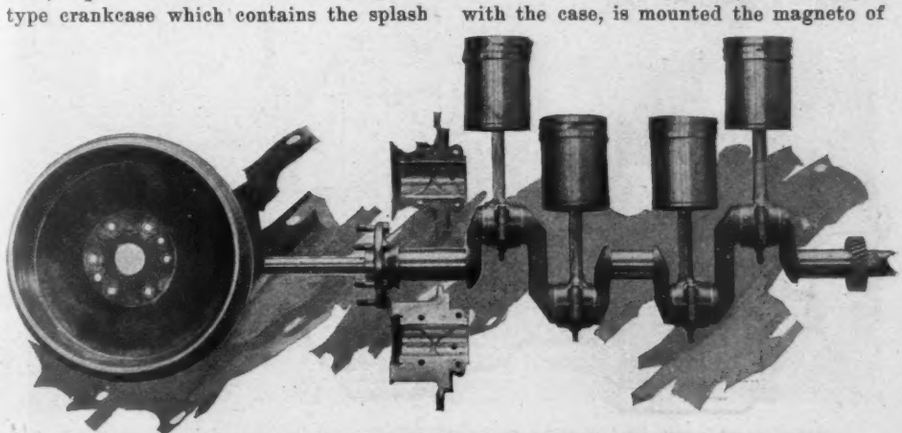


FIG. 6—NORTHWAY CRANKSHAFT WITH RODS AND PISTONS ATTACHED

the jump spark ignition system. The arrangement is such that it is high up and very accessible. The fan, pump and magneto, of course, are driven from the same shaft; and an Oldham coupling between it and the pump, together with the metal strap which secured it to the base, makes the removal of the magneto a very simple operation.

The Clutch and Gearset

A leather-faced cone clutch is employed which is so designed that it produces no lateral pressure on the crankshaft bearings at any time. The cone is of aluminum, and mounted through a plain bronze bushing on the tail of the crankshaft. There are, in fact, two bronze bushings between the clutch and the tail of the crankshaft, as the drawing, Fig. 8, plainly shows; the rear one being keyed to the shaft and the front one being free to revolve, a ball thrust bearing separates the two. The clutch spring is unusually large and powerful, but easily operated by the means provided.

The transmission gearset is a short, compact structure of selective sliding gear type, giving three forward speeds and reverse. A feature of this gearset is that its entire internal mechanism is mounted in the plate that closes the rear end of the gearset, and can be removed therefrom as a unit, as shown in Fig. 5. Both shafts are in the same vertical plane; but in the smallest motor, model 15, the countershaft is mounted on plain white metal bearings, and the main shaft on a single row annular ball bearing in front and a double row annular ball bearing in the rear. The transmission gearsets of the larger models, 19 and 25, have both shafts mounted on annular ball bearings. All transmission gears, and other parts of the power plant, are heat-treated in the Northway company's own oil furnaces, and according to the specifications from the General Motors laboratories, which are under the supervision of Professor Zimmershied, of the University of Michigan.

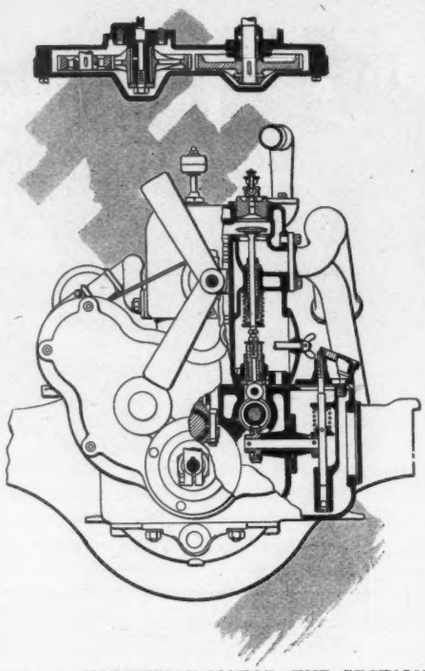


FIG. 7—NORTHWAY MOTOR, END SECTION

ELECTRIC VEHICLES AT THE SHOWS

Eighteen different makes of electric vehicles will be exhibited at the New York and Chicago shows this winter. Eight of these will be displayed at the Madison Square garden show from January 6 to 20, six others at the Grand Central palace show from January 10 to 17, and thirteen makes at the Chicago show from January 27 to February 15.

There will be no duplication of exhibits in the two New York shows, which will be open concurrently, but many of the makers who exhibit in these shows will make displays also in Chicago. Four of the electric car companies will exhibit passenger cars during the first week, and commercial vehicles second week, both in New York and Chicago.

The appended list shows where each company will exhibit its product and the class of vehicles that will be displayed. Several makes that are new to the public will be seen this year. These are the Argo passenger and commercial cars, the Bronx commercial vehicles, the Flanders electric passenger cars, the General Motors electric trucks, the Standard electric passenger cars, and the Ward delivery wagons. The list is as follows:

Anderson Electric Car Co., Anderson, Ind.—Passenger and commercial cars, Madison Square garden and Chicago.

Argo Electric Vehicle Co., Saginaw, Mich.—Passenger and commercial cars, Grand Central palace.

Baker Motor Vehicle Co., Cleveland, Ohio.—Passenger and commercial cars, Madison Square garden and Chicago.

Broc Electric Car Co., Toledo, Ohio—Passenger cars, Chicago.

Bronx Electric Vehicle Co., New York city.—Commercial cars, Madison Square garden.

Columbus Buggy Co., Columbus, Ohio.—Passenger cars, Grand Central palace and Chicago.

Flanders Mfg. Co., Pontiac, Mich.—Passenger cars, Madison Square garden and Chicago.

General Motors Truck Co., Detroit, Mich.—Commercial cars, Madison Square garden and Chicago.

General Vehicle Co., New York city.—Commercial cars, Madison Square garden and Chicago.

Hupp Corporation, Detroit.—Passenger cars, Grand Central palace and Chicago.

Ohio Electric Car Co., Toledo, Ohio.—Passenger cars, Grand Central palace and Chicago.

Rauch & Lang Carriage Co., Cleveland, Ohio.—Passenger cars, Chicago.

Standard Electric Car Co., Jackson, Mich.—Passenger cars, Grand Central palace and Chicago.

Studebaker Automobile Co., South Bend, Ind.—Commercial cars, Madison Square garden.

Walker Vehicle Co., Chicago.—Commercial cars, Grand Central palace and Chicago.

Ward Motor Vehicle Co., New York city.—Commercial cars, Madison Square garden.

Waverley Co., Indianapolis, Ind.—Passenger and commercial cars, Madison Square garden and Chicago.

Woods Motor Vehicle Co., Chicago.—Passenger cars, Chicago.

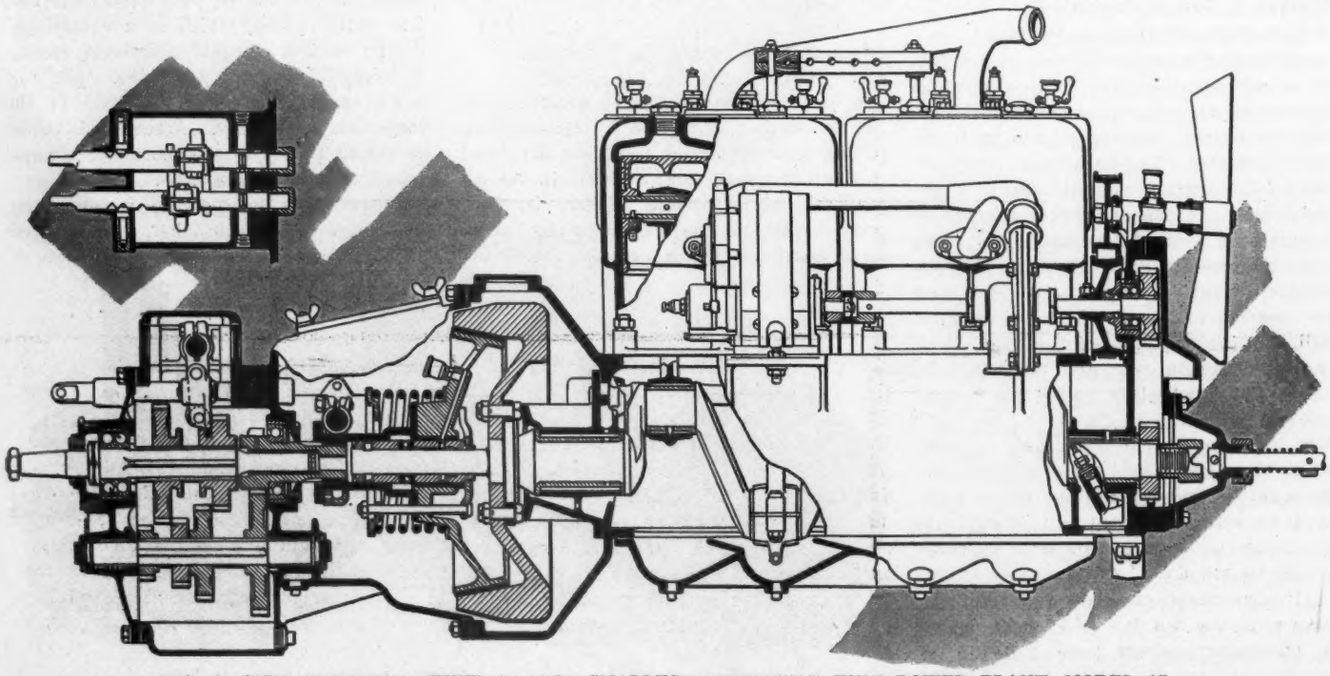


FIG. 8—SIDE SECTIONAL VIEW OF THE SMALLEST NORTHWAY UNIT POWER PLANT, MODEL 15

The Motor Car Repair Shop

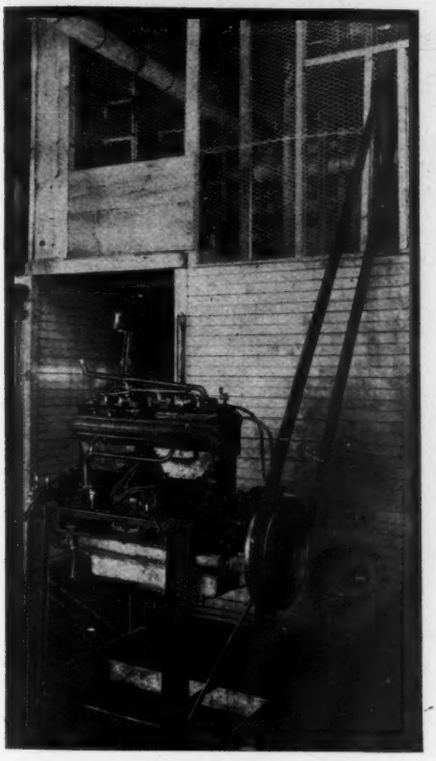


FIG. 1—RUNNING IN ALCO MOTORS

ALMOST every repairshop nowadays should be provided with a safe and convenient means of cleaning up motor car parts with gasoline or kerosene, and a visit to some of the up-to-date shops or agencies recently constructed in Chicago will show that some have gone to no little expense in equipping themselves for this purpose. In Fig. 2 is shown the cleaning outfit now in operation in the repair department of Paulman's Chicago Pierce-Arrow agency. It consists of a large steel structure, large enough to conveniently hold any part of the motor car except the frame; an air-pressure pump, a reservoir for the cleaning fluid, and a hose connection leading therefrom with an adjustable nozzle by means of which a powerful stream or spray of the cleaning fluid may be directed onto the surfaces and into the corners of a mechanism to clean it thoroughly.

In operation the air pump is driven by belt from an overhead pulley on the shaft which supplies power to the machine tools. The compressed air passes to the reservoir R by way of the pipe E, and a safety valve S is provided in case the pressure in the reservoir exceeds a certain limit. The pressure in the reservoir forces the fluid out through the hose H. By means of the valves C the proportions of the mixture of air and cleaning fluid which passes through the hose can be regulated, while the force of the steam itself can be regulated by means of a valve on the nozzle N. A vent pipe V of large diameter extends from the top of the cabinet. It is provided with a forced draft for carrying off the fumes of the gasoline, when used, and a door D closes the cabinet completely when not in use. Provisions are made for draining the cleaning fluid from the cabinet, and after straining it, it is replaced in the reservoir; thus the expense of the cleaning is considerably reduced. It might be added that though this is rather an expensive structure, it has already paid for itself through its reduction in the consumption of gasoline and kerosene, and insurance.

Running In Alco Motors

In accordance with the most uptodate motor car repairshop practice, the Alco repairshop is provided with a means of running in motors, after they have been overhauled and their bearings tightened up. By running in a motor, as shown in Fig. 1, it is possible to flood it with oil in a manner that is very beneficial to all bearing surfaces; giving them a smooth, hard, glossy finish. By running a motor in under its own power, an excess of oil cannot be used without causing an undesirable accumulation of carbon to form in the cylinders. Nor can the bearings be fitted as tightly as in a motor which is to be run under outside power. When a motor is to be run in by means of a belt on the flywheel, as shown in the illustration, babbitt or white metal bearings may be fitted so snugly that it is impossible to crank it over in the ordinary way. The belt is then applied to the flywheel and the motor operated in this way for several hours, at the end of which time it generally is found that the crankshaft can be revolved quite readily by means of the regular starting crank. Often after running in a motor this way for many hours, it is found that the bearings are still tight and require a little loosening up; the bearing surfaces, however, are in excellent condition, and when again adjusted, so that the crankshaft runs freely, one can rest assured that under favorable conditions no more adjustment will be required for a considerable length of time.

There also are other advantages obtained by running a motor in by belt. In motors, for instance, that have been fitted with new cylinders, or pistons, or new piston rings, any errors in fitting, misalignment, etc., are more readily found. Pistons that do not line up properly will bind at certain points in the stroke, and the cylinder will tend to run warm; bearings which might overheat and score the shaft when the motor was running under its own power, will make themselves known by the heat which they generate. There are those who claim that a motor whose bearings are properly fitted requires no running in under a belt; but it must be borne in mind that the majority of motor car repairshops are not over crowded with workmen skillful enough to fit motor bearings to such a nicety.

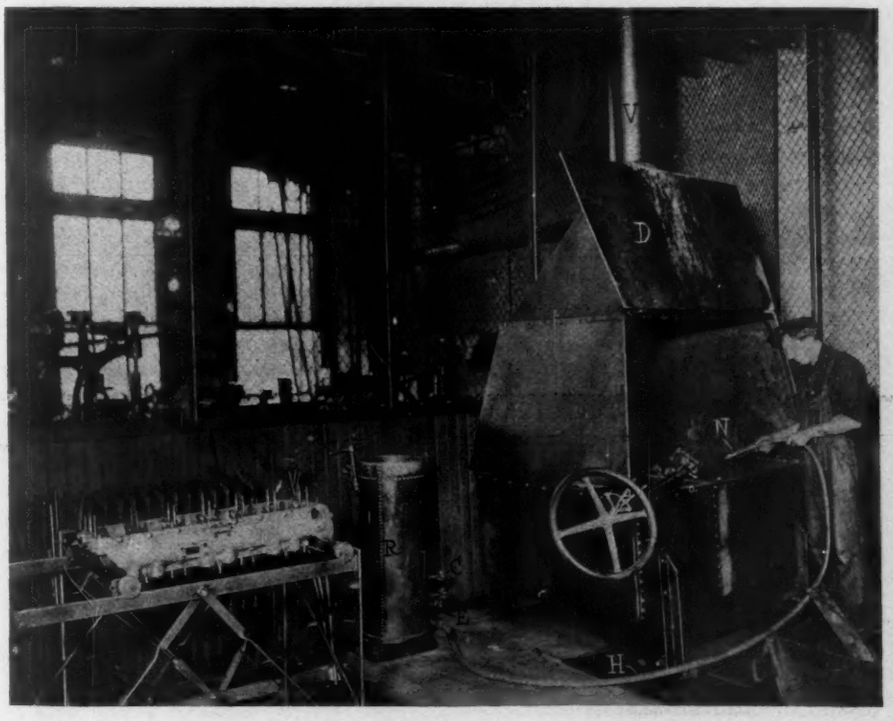


FIG. 2—CLEANING OUTFIT IN PAULMAN'S PIERCE-ARROW REPAIRSHOP, CHICAGO

The Realm of the Commercial Car

ALCO PROVES ITS UTILITY

ONE of the most severe and practical tests ever undertaken by a motor truck has just been successfully accomplished by a 3½-ton Alco in service for the Adams Express Co., of Philadelphia. The truck performed continuous duty from Monday morning, December 18, until early the morning of December 23, working 24 hours every day, and presenting a record of 144 hours of uninterrupted work. In that time it traveled 589 miles, making 800 stops, which accounts for the low mileage.

From beginning to end the motor never stopped. On the side of the truck a large banner was displayed, noting the progress of the run, at intervals throughout each day the number of hours being designated. The assortment of duties assigned the truck was a most comprehensive one, everything conceivable being hauled—Christmas gifts and toys, oil paintings, turkeys, plants, miscellaneous merchandise, and even a live steer being included.

On almost every trip capacity loads were carried and each day as a demonstration of the truck's versatility the character of the service was changed, one day performing collections of holiday gifts and then switching to transfer work between the express company and the railroad depots.

During the week more than 1,200 packages, boxes, etc., were carried, weighing approximately 450,000 pounds; 800 stops were made, and an estimation of the merchandise carried places its value at over $300,000. The truck accomplished the work of six two-horse teams.

In economy of operation easily proved its advantage. The average of gasoline consumed was 1 gallon for an hour of service and of oil 1 quart about every 6 hours.

ALCO THAT MADE THE PHILADELPHIA DEMONSTRATION

ELECTRIC CLUB MEETS

"Electrocute your horses and electrify your business' was the epigram of advice that was given to the guests at the banquet of the Electric Vehicle Club of Boston at the Boston City Club, December 19, when more than 200 men identified with the electric vehicle industry, pleasure and commercial, together with heads of various municipal departments, feasted and talked.

Hayden Eames, of Cleveland, was the principal speaker of the evening, and he delivered an extemporaneous address during which he dwelt upon the different phases of urban and interurban transportation. He cited facts and figures and gave comparisons with conditions abroad and here. He also dwelt upon the use of motor vehicles in army maneuvers in Europe and told of what is proposed in this country. He had a number of figures showing how transportation was cheaper by use of motor vehicles, and he told of the era of electrics and what was in store for the makers.

W. H. Blood, Jr., who represented the Electric Vehicle Association of America, was chairman, and he was the speaker who made the epigram as quoted above. He stated that he did not mean it literally, but that it would be the best thing for merchants and department heads seeking to conduct their business upon an economic basis.

The final talk by President Day Baker was illustrated by lantern slides, during which he traced the progress of the electric vehicle from its inception. He said in part:

"The first machine so far as we know manufactured in this country was built by Fred M. Kimball. This little vehicle was rebuilt from the ordinary tricycle, and while it was only able to go 6 miles on a single charge, yet it was one of the stepping stones leading to the success of today.

"Following the vehicle built by Mr. Kimball, was a machine constructed in Kansas by the president of the Electric Vehicle Association of America, W. H. Blood, Jr. This machine, while demonstrating the possibilities of the electric storage battery, never was able to make any successful runs, as it was lost in a railroad wreck directly after its construction, so history is unable to give us an insight as to its merits.

"In 1887 the sultan of Turkey ordered of Imerich & Co., London, a vehicle not to be drawn by horses, or propelled by steam, and as a result they built an electric vehicle.

"Within the last few years there have been conducted in the various parts of Europe, and especially in Germany, exhaustive experiments on electrically-driven fire trucks, the results of which indicate that these are best adapted to service in large cities, while other methods of propulsion, or horses, are best for suburbs and small communities. Electric fire trucks are used in Berlin, Charlottenburg, Schoneberg, Rixdorf, Bramschweig, Elberfeld, Duisburg, Hanover, Crefeld, Bremen, Cologne, Frankfort, Dortmund, Madgeburg, Mannheim, Dusseldorf, Schwerin, Wilhelmshaven, Munich, Hamburg and Munster, all in Germany. They are also used in Vienna, Basle, Amsterdam, Paris and London. Berlin leads with forty trucks and Vienna is next with twenty-eight trucks.

"The Berlin trucks, which are built by the Daimler Morten Gesellschaft, are equipped with motors built into the hubs of the front wheels, the Sohner-Borsche or Mercedes-Electrique system. At present the Berlin fire department has six complete outfits, each made up of four trucks, and within the next year three more outfits will be added to these. Ultimately it is planned to have 145 motor trucks, eighty electrics, twenty-one steam and forty-four benzine. Each fire outfit comprises one supply truck, one gas blower, one steam blower and one ladder truck, the whole being manned by twenty-four men.

"The motors are waterproof and dustproof and are rated at 15-horsepower, 225 revolutions per minute and 160 volts. They are series motors arranged for series-parallel control, which gives five running speeds by dividing the battery. The working weight of the loaded truck is between 4.5 tons and 6.1 tons, and its speed on the level is respectively 25 miles and 22 miles per hour.

"The battery consists of eighty-four Tudor cells and has a discharge capacity of from 117 ampere-hours to 146 ampere-hours and a charge e. m. f. of 220 volts. It is carried in four trays placed under a hood in front of the driver's seat, and occupies a space 3.5 feet by 5 feet. The weight is approximately 1,800 pounds. The working weight of the wagon varies from 5 to 6 tons. The wheels of the truck are equipped with rubber tires 34 inches in diameter and 4.2 inch tread. The truck is provided with an electric and two mechanical brakes, which are independently operated by foot and hand levers and grip cast steel rims in the hind wheels.

"On level pavement and at 15 miles per hour the energy consumption of these trucks is 45 watt-hours per ton-kilometer. At this speed the truck can run 40 to 45 miles with a single charge. This is the ideal radius of action. However, because of using various speeds, acceleration resistance, etc., the actual radius of action is reduced about 15 or 20 per cent, so that with an average of 30 to 35 miles the apparatus is well adapted for fire department service.

"During the spring of 1911, Springfield, Mass., acting under the advice of W. H. Daggett, chief engineer of the Springfield fire department, purchased two pieces of electrically-driven fire apparatus. In July, 1911, a combination wagon and 85 foot aerial extension ladder truck were in service, and the first 2 months' operation had resulted in a total cost of energy for charging the two machines of less than $11, the rate being 3 cents per kilowatt-hour. It was apparent that even if the life of the batteries should be but a single year, there would still be a margin of nearly 100 per cent in favor of electricity as compared with the cost of service by horses.

"Two new units have just been added to the service, one being a combination wagon duplicating the earlier installation, and the other an 85-foot extension ladder truck, which has been converted from horse to electric driving by the substitution of a couple-gear tractor truck equipped with four 3-horsepower motors in place of the forward pair of wheels originally used. The tractor has a wheelbase of 7 feet 6 inches, and the current is supplied to the motors from a battery of eighty cells of National seventeen-plate storage units hung in the tractor to provide additional adhesion. Solid rubber tires are used on all wheels, and those on the tractor are double. The truck can be turned around in a circle of smaller radius than its over-all length. The speed of the truck on a level street is 27 miles per hour, maximum, and on a 10 per cent grade a speed of 12 miles per hour has been obtained."

FRENCH ANTI-MUD SPLASHER

TO PREVENT MUD SPLASHING

For several years the municipal authorities, taxicab and omnibus proprietors of various European cities have been endeavoring to discover a really efficient device to prevent mud splashing. The Paris authorities have devoted much attention to this matter without, however, meeting with a great amount of success, the best device up to the present being a leather splasher hung from the hub cap. When this is not carried round with the wheel it keeps down a certain amount of mud, and being cheaply produced and readily attachable it is the best all-around arrangement in general use up to this time.

At the present moment the Paris Omnibus Co. has under test a new splasher, invented by M. Menu, which has shown itself capable of stopping all side projections of mud at whatever speed the vehicle is running and however muddy the roads may be. The apparatus is now under test on one of the city motor buses, and if found economical in use will probably be adopted for the entire fleet.

The Menu splasher consists of a deep rubber and canvas ring bolted to a light metal rim and secured by means of five light clips to the spokes of the wheel, a space of about 3 inches being left between the tire of the wheel and the splasher. The device is made out of discarded pneumatic tires, the tread being cut out, thus leaving two profiled rings of rubber and canvas having a face depth of about 3 inches. It is only necessary to bind the raw edges to obtain a durable splasher, one which will bend when brought into contact with road obstacles, and yet which will return to its original shape when the obstruction is passed.

One of the minor advantages of the splasher is that when fitted to pneumatic tires its presence is not perceptible unless the wheel is examined from a three-quarter standpoint. All other splashers produced up to the present have had the disadvantage, from the standpoint of the private owner, of detracting from the appearance of the car.

Public tests of the Menu over specially watered macadam roads having numerous pot holes have shown that no mud whatever is flung sideways when traveling at a speed of 25 miles an hour. The tests were made before members of the Paris municipality, the car being fitted with pneumatic tires. The accompanying illustrations give an idea of the appearance of the device and how it is attached.

PARIS DEVICE INTENDED TO PREVENT MUD SPLASHING

Three Models of Saurer Motor Trucks

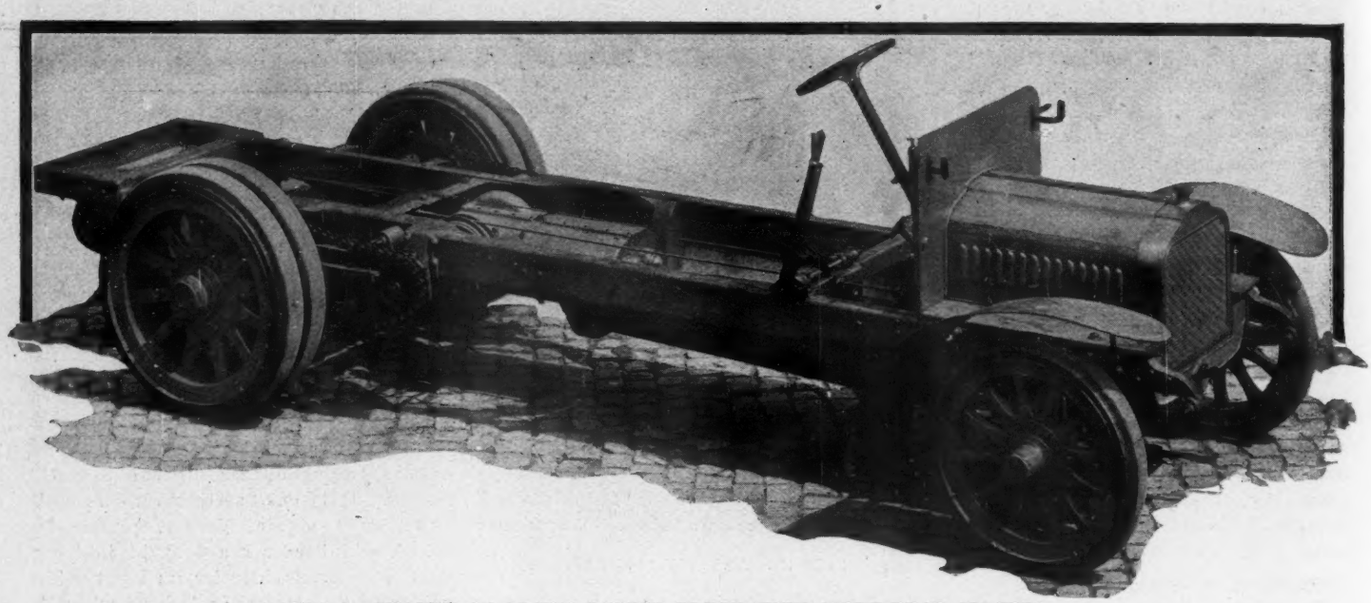


FIG. 1—CHASSIS OF 6.5-TON SAURER TRUCK WITH INSET REAR SPRINGS

Low body carriage is obtained on this chassis by insweeping the side members of the frame alongside the rear springs much the same as the conventional frume side member is narrowed from the dash forward to reduce the turning angle of the car. This is the only Saurer truck model in which this is done. This gives a lower body carriage than would be possible otherwise

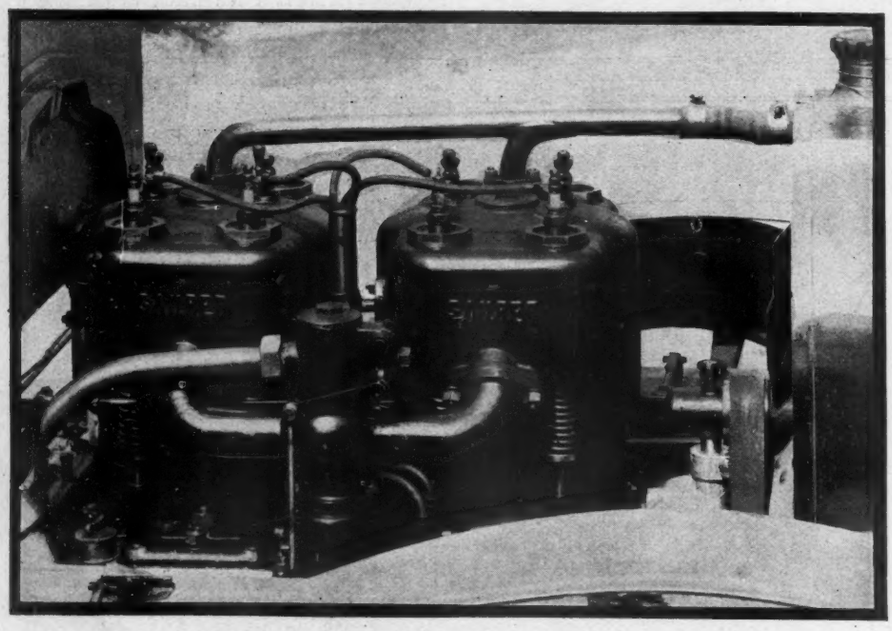


FIG. 2—37-HORSEPOWER MOTOR ON 4.5 AND 6.5-TON SAURER TRUCKS

THE Saurer truck, which has been in the public eye in America for several seasons and which is now being manufactured at Plainfield, N. J., is built in three sizes, as follows:

Load	Motor	Chassis Weight
2.5 ton	3½ by 4 5/16	3,850 pounds
4.5 ton	4⅜ by 5½	5,700 pounds
6.5 ton	4⅜ by 5½	6,900 pounds

These chassis weights are without body. Perhaps there is nothing more conspicuous about the Saurer trucks than the light weight of them in comparison with the load they carry. It is customary in trucks of 4 and 6-ton capacity that the weight of the truck is generally equal to or more than the weight of load carried, but in the Saurer the reverse is true, the load is much in excess of the chassis weight. This reduction in weight has been one of the cardinal features of Saurer construction from earliest times, and has been accomplished by the use of special alloys of steel. The Saurer engineers drew up special specifications for frame, axles and other parts, and in spite of the reduced weight a high factor of safety is afforded.

In all of its trucks a four-cylinder motor is used, and ball-bearing crankshafts employed. Three annular bearings of this type are used in this motor. While makers of pleasure cars have drifted away from the use of ball bearings, this truck concern has remained constant in using them. Ball bearings give a shorter overall length to the motor than is possible with plain bearings and the problem of lubrication is much simplified. Fig. 2 gives a general concept of the motor for the 4.5 and 6.5-ton chassis. It has the cylinders cast in pairs, with valves disposed oppositely. There is nothing unusual in its general design and the most impressionistic feature is that so small a power plant is capable of so adequately handling large loads. The valves are not large, being 1⅞-inch in diameter for intake and exhaust. The rated horsepower is 37, which is generated at 1,000 revolutions per minute, this being a piston speed of little over 900 feet per minute. In addition to the crankshaft both camshafts and fan-shaft are carried on annular ball bearings. Chrome nickel steel is used in all these parts. Ignition is by high-tension magneto with spark advance on the dash instead of on the steering wheel. In cooling the motor a small size honeycomb radiator is used, circulation being maintained by centrifugal pump. A fan in rear of the radiator assists in the circulation of air.

Monobloc Motor on Small Saurer

In the small Saurer motor, used in the 2.5-ton truck, a monobloc cylinder casting is used, with both sets of valves located on the left side. As in the majority of monobloc motors the piping is simplified, the inlet manifold, exhaust manifold, water inlet pipe, and water outlet pipe each having but a single connection with the engine casting. The exhaust manifold is surrounded by an adjustable airjacket used to furnish hot air through a passage in the crankcase to the car

bureter. Positive water circulation by pump is maintained. Ignition is by high-tension magneto without battery.

All motors are equipped with a centrifugal governor for regulating the speed. This governor is under the control of a spiral spring and acts through a lever system on the throttle. This speed regulator works in combination with change-speed lever and regulates the tension of the governor springs. Placing the change-speed lever into the low three speeds cause the governor spring to remain normal and allows a motor speed of 1,000 revolutions of the crankshaft per minute. Shifting into high gear changes the tension of the governor spring and throttles the motor to 750 revolutions per minute. At the time the change-speed lever is in neutral position the engine is throttled to 400 revolutions per minute. With this speed regulator scheme the motor is allowed to attain its maximum power when the low gears are engaged, thus giving full strength for starting, climbing hills, and heavy duty work in mud.

Construction of Clutch

The clutch is a leather-faced cone with a rubber ring beneath the leather facing, this ring playing the same role as flat springs or plungers, and being intended to prevent gripping. The gearset is a four-speed one located amidship, as shown in Fig. 3. There are four forward variations: Gears and shafts are nickel steel and annular ball bearings are used. The gearbox incorporates the differential and jackshaft, side chain drive being used.

All Saurer trucks are equipped with three brakes: The first is a gearbox brake located at the left of the gearbox on the jackshaft; second, comes the expanding set within the rear wheel drums; and third, there is the patented air motor brake system to be described. The speeds of the different models at normal motor speed is as follows:

Load	1st	2nd	3rd	4th	Rev.
2.5 tons	3 M. P. H.	8	14	25	3
4.5 tons	3 M. P. H.	6	10	16	3
6.5 tons	2.25 M. P. H.	4.5	6	10	2.25

In all models the jackshaft is a chrome nickel steel carried on annular ball bearings. Roller bearings are used for the front and rear wheels. The spring suspension is semielliptic on all types. On the 6.5-ton chassis, Fig. 1, a particularly low carriage of the frame is obtained by offsetting the side members of the frame over the rear axle. At this point the side members are closer together, leaving room in the offset for the semi-ell-ptic springs. This is the only known example of this construction and gives a happy combination for truck work, in that the tread is reduced and the frame lowered without sacrificing in any way.

Frame side members are cold pressed steel of channel cross section. On the 2½-ton truck the frame has a thickness of ¼ inch, a depth of 4¾ inches, and is 2 3-16 inches wide at the top and bottom.

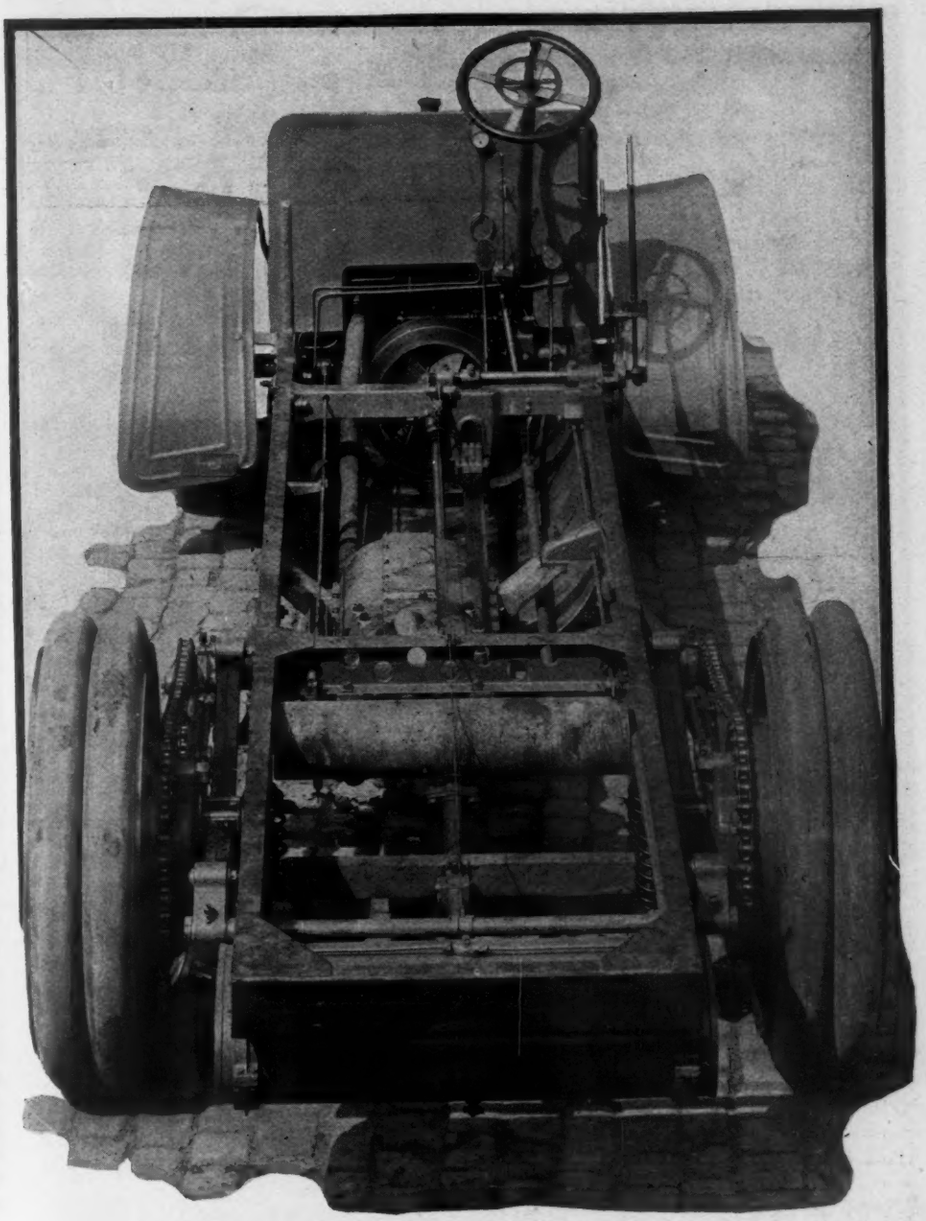


FIG. 3—CHASSIS OF 4.5-TON SAURER TRUCK WITH CHAIN DRIVE

FIG. 4—SAURER 4.5-TON TRUCK WITH LATTICE BODY

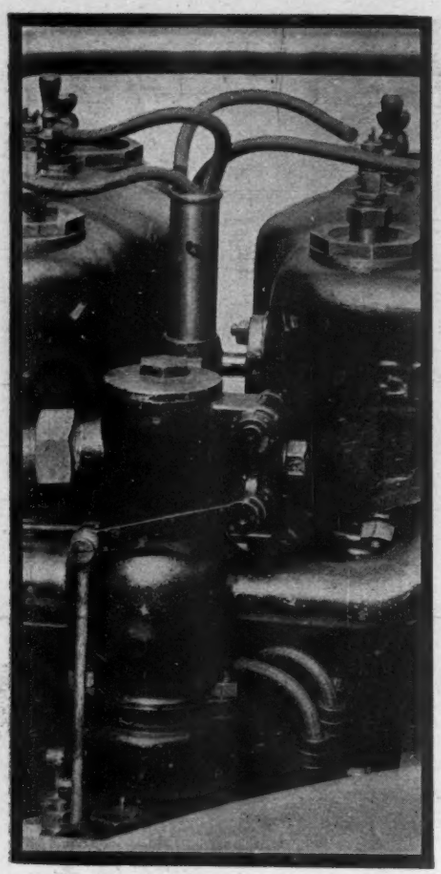


FIG. 5—SAURER CARBURETER

This shows the exterior of the triple-controlled carbureter which permits of using the motor as an air brake

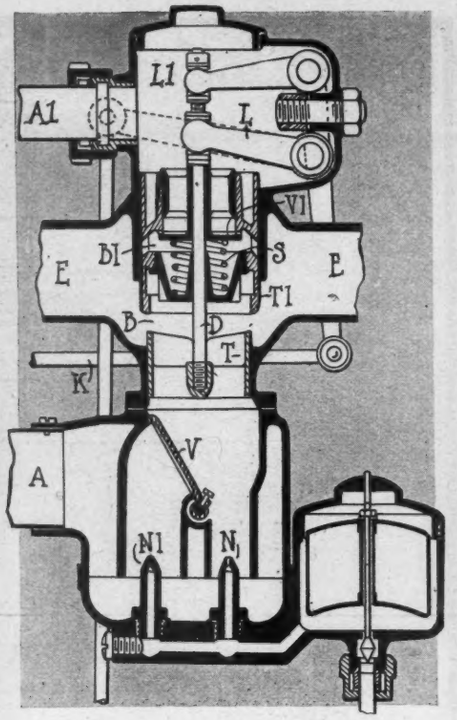


FIG. 6—SECTION OF CARBURETER

This section of the Saurer carbureter shows the two nozzles used, the exit pipes E to the cylinders, the external air pipe A1 through which air enters for use in the motor air brake, and also the connection K for governor control of the throttle

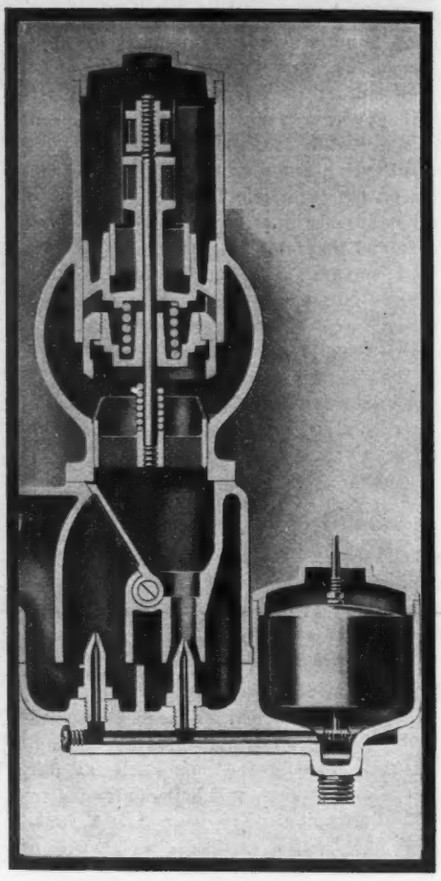


FIG. 7—GENERAL VIEW OF SAURER

This sectional illustration shows how the left-hand nozzle is controlled by a hinged flap valve, shown in the closed position

On the 4½-ton truck the frame has a thickness of 5-16 to 2-16 inches, a depth of 4¾ inches, and is 2 3-16 inches wide at the top and bottom. The frame depth of the 4½-ton model is uniformly maintained from end to end throughout their whole length. The frame of the 6½-ton truck is ⅜ inches thick, maximum depth 6 inches, width top and bottom 2½ to 3.

The axles of the 4½- and 6½-ton trucks are a special drop forged steel. The front axle of the 4½-ton model is 2¾ inches deep and 1¾ inch wide; the front axle of the 6½-ton machine 2¾ inches deep and 1¾ inch wide. The rear axle of the 2½-ton truck, which is shaft driven, is a floating construction, special electric cast steel, and the castings are provided with integral flanges bolted to the bevel gear housing. The reduction is made in the gearcase. The 4½-ton truck has a drop forged rear axle of 6 feet 3 inches in length, 3¼ inches in depth and 2 3-16 inches in width; the rear axle of the 6½-ton truck is 6 feet 3 inches in length, 4 3-16 inches deep and 2½ inches in width.

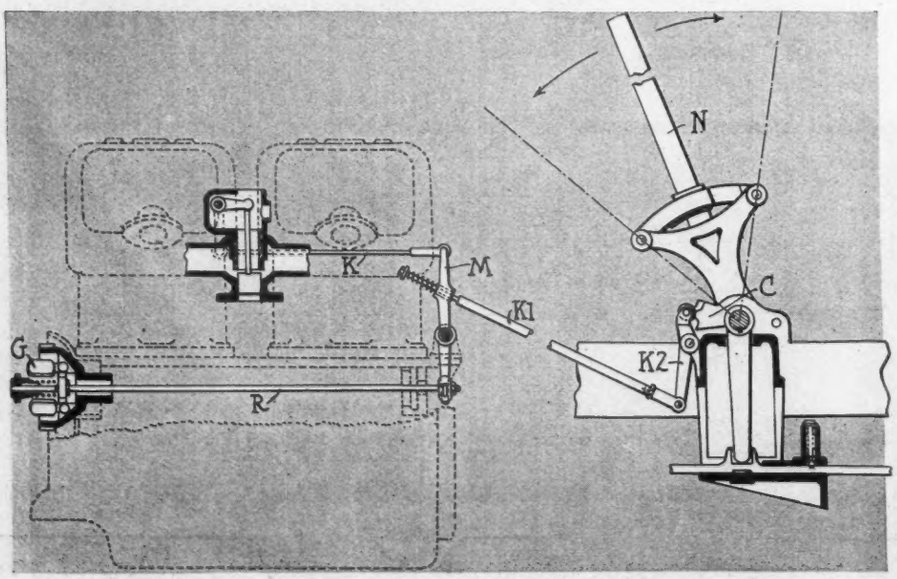


FIG. 8—GOVERNOR AND GEARSET CONTROL ON CARBURETER

The throttle of the carbureter is under control of the centrifugal governor G and also the change speed lever L in addition to the regular throttle control on the steering wheel. The gear-set lever control is to reduce speeds when shifting gears and to maintain desired speeds for the different speeds

By far the most interesting detail of the Saurer trucks is the carbureter with its air brake control system. This is fully illustrated in Figs. 5 to 11. Fig. 5 shows the carbureter in place, and Figs. 6 and 7 are illustrations of it. It is a two-jet type, jet N being open for use and jet N1 held out of commission by the flap valve V. Air enters through the passage A and escapes to the motor through the branches E, which connect with the manifold, as shown in Fig. 5. Using two nozzles gives the motor a working range between 200 and 1,000 revolutions per minute, with a fuel consumption in proportion to the power. The flap valve V is controlled by a plunger which operates in a dash pot, Fig. 11. The plunger works against a spring in the dash pot the tension of which spring is regulated to allow the flap valve to open at the proper load.

Operation of Throttle

In order to understand the operation of the throttle it is necessary to remember

that the throttle is combined with the air brake, by means of which outside air is taken in through the passage A1 and brought down through the middle of the carbureter and sent through the pipes E to the motor, at which time the passage of the mixture is shut off by means of lowering the sleeve valve T1. In this way the motor becomes an air brake and the consumption of gasoline is entirely shut off. This shutting off of the mixture and allowing atmospheric air to enter the cylinders is controlled by the throttle lever on the steering wheel, which lever works on a complete circular ring. One portion of the circle is used by the lever for the regular throttle openings, but when pushed beyond this section the outside air is admitted. The operation of this air brake is as follows: By raising the governor throttle T the open annular space B, connecting with exits E, is gradually reduced. When, however, it is desired to entirely shut off the mixture the throttle T1 is lowered, entirely closing the annular space B and opening an upper annular space B1, so that the air entering by A1 has a free passage downwards and into the manifold.

Control of Carbureter

Fig. 6 shows how the carbureter is under double control, namely, from the throttle lever on the steering wheel, and also under control of the change-speed lever so that speed is reduced when shifting gears and also placed at 1,000 revolutions per minute for first, second, and third speeds, and at 750 revolutions per minute for fourth speed. The connection K unites with the change-speed lever N, as shown in Fig. 8, and it also connects with the governor G by means of the pivoted arm M and the rod R which is carried inside the hollow camshaft. Fig. 10 shows this rod inside of the camshaft, also the position of the governor. Fig. 9 shows the arrangement on the change-speed lever N. On the shaft carrying this lever is a cam C. The bell crank K2, carries in a bracket, has a roller R1 on its upper end which bears upon the cam C and connects at the lower end with the rod K1, also shown in Fig. 8. As illustrated in Fig. 9, the gear shift lever is in neutral, the roller R1 resting on the high part of the cam, which, as Fig. 8 shows, places the arm K2 as far from the motor as possible, thus pulling rearward on the arm M and cutting the throttle to 400 revolutions per minute. When engaged in different speeds the roller R1 will rest in the sector-shaped curves of the cam C, one curve giving a throttle control for 1,000 revolutions for first, second, and third, and the other a speed of 750 revolutions for fourth speed. Fig. 10 shows the control of the throttle from the lever Z on the steering wheel. This control is through the steering column and by the connection link Z1 to the arm L1 of the throttle. This arm L1 is also shown in Fig. 6.

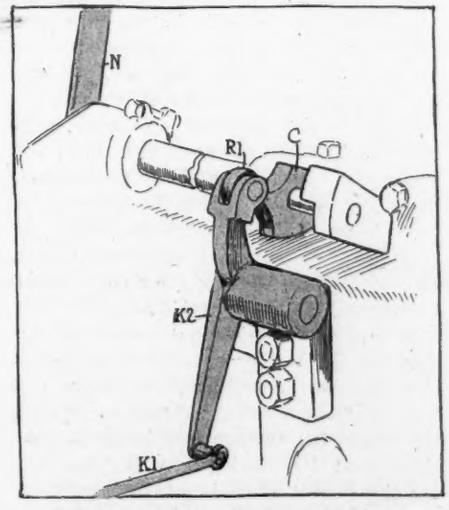


FIG. 9—SAURER GEARSET CONTROL

By means of the cam C on the shaft carrying the change speed lever N it is possible to reduce the motor speed, by closing the throttle, when shifting gears

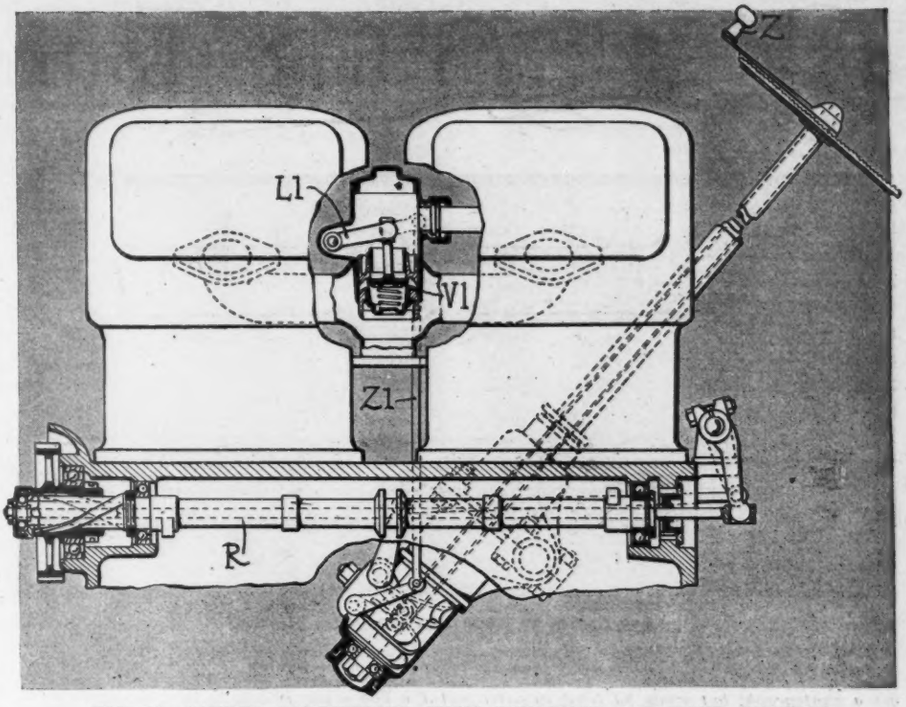


FIG. 10—SAURER CARBURETER WITH GOVERNOR AND HAND CONTROL

This illustration shows how the rod R, which connects with the governor passes through the hollow camshaft. The connection between the hand control Z on the steering wheel and the throttle is also shown

The Saurer Self-Starter

In order to facilitate starting of the motor a compressed-air self-starter is used. This selfstarter consists of a small air pump, about the size of a cylinder in a motorcycle, located in the rear of the clutch and driven from the propeller shaft. This pump supplies air to a storage tank carried on the side of the chassis frame, this tank being 6 inches in diameter and 4 feet long. The air from this tank is led to a shutoff on the dash and from this through an air distributor to the four cylinders, the air distributor performing the same functions with the compressed air as an ignition distributor does to the lectric current.

This engine starter is based on the fact that when stopping a four-cylinder engine the arms of the crankshaft come to rest in ahorizontal position, the piston making the expansion stroke balancing the one making the compression stroke. Normally, therefore, one piston always stops about the middle of the expansion stroke. When compressed air is admitted to that cylinder from a reservoir the piston will overcome the resistance of the one under compression, because excess of presure is applied to the former, while the maximum compression of the latter is only reached at the end of its stroke, when the power of the compressed air gets still further increased by the acceleration of the momentum.

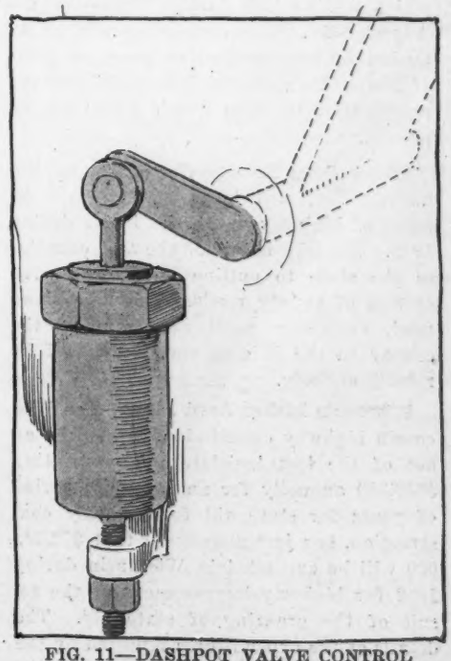


FIG. 11—DASHPOT VALVE CONTROL

This dashpot on the outside of the Saurer carbureter acts on the flap valve V, Fig. 6, allowing this valve to open at desired speeds

From the Four Winds

MOTORIST IN AN ODD PREDICAMENT

G. G. Dinwiddie, of Frankfort, Ind., who recently toured from coast to coast, tells of a predicament in which he was involved through trying to emulate the Premier ocean-to-ocean tourists. At Old Orchard, Me., he conceived the idea of backing into the ocean in order to get a photograph, but when he tried to drive out the heavy car had sunk into the sands so it was almost impossible to extricate it. The tide came up and it was necessary to strip the car of magneto, lamps and other fixtures, and it was only when two ice cars came to the rescue, aided by fifty bathers, that the car was pulled out of the ocean

CALLS Road Meeting—A good roads congress will be held in Milwaukee during the fourth annual show in the Auditorium, January 13 to 19, under the auspices of the Wisconsin highway commission.

Ohio's Motor Receipts—The net receipts of the Ohio state motor car department for year ending December 15, 1911, were $156,680.63. That amount goes to the fund for the building and maintenance of good roads in the Buckeye state.

Dates Set for Meeting—Dates set for Pacific Highway Association convention, which will be held in San Francisco, are August 5-6-7. This convention will be attended by representatives from all parts of North America and it is hoped to have representatives from South American republics.

Means Good Roads—The county of Kenosha, Wis., will build and improve 81 miles of highway within its limits during 1912. Kenosha is one of the first counties in the state to outline a comprehensive system of county roads. The lake shore road, from the northern limits of the county to the Illinois state line, will be rebuilt entirely.

Wisconsin Makes Road Plans—The Wisconsin highway commission, created by an act of the last legislature appropriating $350,000 annually for an indefinite period of years for state aid for highway construction, has just announced that $1,250,000 will be expended in Wisconsin during 1912 for highway improvement as the result of the granting of state aid. The details of the expenditures reported by the commission are as follows: Stone roads, 220 miles; gravel roads, 150 miles; shale road, 25 miles; dirt road, 250 miles, a total of 645 miles In addition there will be constructed under this act 140 bridges to cost $150,000 and divided among 123 townships. Never before in the history of Wisconsin has there been so great a proposed expenditure for highway work.

Wolverines' Show Special—The Wolverine Automobile Club, of Detroit, has made arrangements with the Michigan Central railroad to run a special to the New York show. The train, consisting of standard sleepers, a compartment car and a buffet-library car, will leave at 3:30 o'clock Friday afternoon, January 5, arriving in New York at 9 o'clock Saturday morning.

Chicago Wants Cash for Repairs—The Chicago Automobile Trade Association has passed a resolution binding its members to enforce cash payment for repairs after January 15. No favoritism is to be shown and customers will be required to pay for all repairs or work done when the car is taken from the shop. The Chicago Studebaker branch has followed this policy for some time, while both the Ford and the United Motors branches have been notified by their parent concerns to inaugurate this system January 15.

Big Kentucky Tobacco Crop — Millions of dollars were paid to tillers of the soil by many tobacco buyers throughout Kentucky last week. This news was received with joy by Louisville dealers, who do a state-wide business, for it means that the farmer will have money with which to purchase motor cars next year. Although they bought many machines during the past year, it is believed that the farmers will buy the bulk of cars sold in the Blue Grass state in 1912, since the tobacco crop of 1911, which in the early part of the season was supposed to be a failure, has turned out to be one of the best in years.

Indianapolis' New Fees—A new motor car license ordinance has been passed by the city council of Indianapolis and has been approved by the mayor. After January 1 the following fees will be charged annually: Three passengers and under, $5; four passengers and over, $8; private and public buses and delivery wagons and trucks of more than 1,000 pounds' capacity, $15; delivery wagons and trucks having a capacity of 1,000 pounds or less, $10. The present license fee is $3 for all classifications of cars.

Would Make Levees Highways—Major Lee Richardson, one of the leading business men of Vicksburg, has been working for some time on a plan to use the levees on both sides of the Mississippi river for national highways. Millions of dollars have been spent in building the levees. They have and are serving their purpose well, but now it seems that, through the suggestion of Major Lee Richardson, they will serve another purpose, equally as important as their protection feature, in advancing transportation facilities, both from a standpoint of pleasure and business. Already a strong movement in under headway to get congress to make appropriations to build roads. The levees are under control of the government, and it will be especially appropriate to have the war department and congress take hold of Major Richardson's proposition, and endorse it to the full extent of its feasibility.

Pacific Highway Markers—That in the future no insignia will be permitted to appear on Pacific highway signs, except the words "Pacific Highway," the letters "N" and "S," and two arrows indicating directions, seems to be the consensus of opinion among those prominent in the work of the big trunk highway. It also has been planned to make all these signs uniform in size, material, and color, with the "N" and an arrow at the top of the letter "S" and an arrow at the bottom. Thus far all the Pacific highway signs have been erected through the efforts of city motor clubs, which have been given the privilege of placing their emblems at the top of the sheet-steel diamonds. The officers of the association, however, having thought the matter over, are convinced that the use of such emblems gives the general public a wrong impression. Seeing the crests, the average man is apt to conclude that Pacific highway is primarily for the benefit of motorists who wish to tour. This is really only a secondary consideration. The Pacific highway's first and foremost function is as a means of

communication between communities and farmers. Another argument advanced against the use of emblems is that local authorities through whose domains the highway passes will be apt to think that the club whose name appears will care for the markers' maintenance without any assistance.

Nebraska Making Big Plans—Plans are being pushed for the state good roads association meeting, which is to be held in Lincoln, Neb., January 16. A dozen towns already have signified their intention of sending delegations, and it is assured that a big representation of Nebraska good roads enthusiasts will be present. Thomas MacDonald, highway commissioner of Iowa; W. S. Gerhart, who holds a similar position with the Kansas commission, and other experienced men will give addresses.

Walking to New York Show—William J. Connell, of Connell & McCone, agents for the Overland, President William P. Cronin of the Standard Tire and Rubber Co., and W. R. D. Owen of the same firm, started from Boston Tuesday morning, December 26, to walk to the Madison Square garden show on a wager. They must reach the show not later than midnight of Friday, January 5. They have arranged a schedule of 25 miles a day. The wager was made as a result of a controversy to the effect that those who use motor cars extensively become unfit for the ordinary physical exertions.

Prison for a Hold-Up—Henry A. Heath, a Bostonian, who was in court on a charge of holding up a motor party in the Boston park system just before midnight on November 21, has been sent to state prison by Judge Sanderson of the superior court to serve a term of 5 years and 1 month. Heath stopped a car owned by Stephen R. Codman, a prominent Bostonian, and pointing a revolver at him and the chauffeur, George W. Chandler, made them get out of the car. When Chandler saw that the robber was a young man he pitched into him and took the revolver away. Judge Sanderson said that only the extreme youth of the robber saved him from getting a much longer term in prison.

Insurance Commission Reports—The commission appointed by Governor Osborn, of Michigan, to investigate the question of employers' liability and workmen's compensation, has submitted an exhaustive report, which will be used as the basis of a bill to be introduced in the next legislature. The proposed bill provides for a definite schedule of damages to be paid in case of disability, partial or complete, and in case of fatal injuries, the compensation amounting to 50 per cent employes' wages for a stipulated period, varying with the degree of disability. The bill would nullify three of the main defenses now employed in damage suits, namely, the fellow servant doctrine, contributory negligence and assumption of risk by the employe. The commission gives statistics to show that injured employes are not now properly compensated and that about 40 per cent of the judgments recovered goes to the attorneys, on an average.

Maryland Would Change Control—Governor Austin L. Crothers, the retiring chief executive of Maryland, in his message to the legislature, recommends that the office of motor vehicle commissioner be abolished by the state and that the enforcement of the law be placed in the hands of the state roads commission. In discussing the motor vehicle law and the changes he suggests, Governor Crothers said: "This law passed by the last legislature for securing state revenue from the use of motor cars and to regulate and make safer their travel upon the public roads has been a success. The revenue collected by this department in licenses issued has amounted to $103,000. I believe in 5 years this will reach $300,000 which will go for the maintenance and building of state roads."

Chicago New Horn Law—The Chicago city council has passed a horn ordinance which says that it "shall be unlawful for any person to use any device which will not produce an abrupt sound sufficiently loud to give an adequate warning of danger, and it shall be unlawful for any person operating any motor vehicle or motor cycle to make or cause to be made any unnecessary noise with any such bell, horn, or other signal device, or to use the same except as a warning of danger."

Coming Motor Events

December 30-January 6—Buffalo Automobile Trade Association show; H. G. Johnson, manager, 401 Franklin street, New York.

January 2-11—Importers' salon, Hotel Astor, New York.

January 6-20—Madison Square garden show; Automobile Board of Trade, H. A. Bonnell, manager, 7 East Forty-second street, New York. Pleasure cars and accessories, 6-13; commercial cars and accessories, 13-20.

January 10-13—Second annual show, Peoria, Ill.; A. H. Whigham, manager, Peoria, Ill.

January 10-17—Annual show, Grand Central palace, New York; National Association Automobile Manufacturers, S. A. Miles, manager, 7 East Forty-second street, New York.

January 13-19—Milwaukee show; Malwaukee Automobile Dealers' Association, B. J. Ruddle, manager.

January 13-27—Show of Philadelphia Automobile Trade Association, Philadelphia, Pa.

January 15-20—Show at Toledo, O.; H. V. Buelow, manager, Toledo, O.

January 15-20—Twelfth annual show, Madison Square garden, New York; commercial division, Automobile Board of Trade, H. A. Bonnell, manager, 7 East Forty-second street, New York.

January 18-20—Annual meeting Society Automobile Engineers, New York.

January 22—Show at Dubuque; Dubuque Automobile Dealers' Association, D. H. McCarthy, secretary, Dubuque, Ia.

January 22-27—Show at Detroit, Mich.; Detroit Automobile Dealers' Association; W. R. Wilmot, manager, 501 Bowles street, Detroit, Mich.

January 22-27—Show at Providence; Rhode Island Licensed Automobile Dealers' Association; Arthur S. Lee, manager, 52 Richmond street, Providence, R. I.

January 22-27—Annual show, Rochester, N. Y.

January 27-February 10—Eleventh annual show, Coliseum, Chicago; National Association Automobile Manufacturers, S. A. Miles, manager, 7 East Forty-second street, New York. Pleasure cars, January 27-February 3; commercial, 3-10.

January 27-February 10—Annual show, Pittsburgh, Pa.; Automobile Show Dealers' Association of Pittsburgh. Pleasure cars, January 27-February 3; commercials, February 3-10.

January 29-February 3—Second annual show, Scranton, Pa.

February 1-7—Tentative dates for show at Washington, D. C.

February 1—Show at Harrisburg, Pa.

February 3-9—Show at Albany, N. Y.

February 3-10—Show at Harrisburg, Pa.

February 3-10—Show at Montreal, Canada; Automobile Club of Canada.

February 5-10.—Show of Automobile Dealers' Association of Wilkes-Barre; R. A. Rosenkrans, 37 West Market street, Wilkes-Barre, Pa., secretary.

February 5-12—Show at Buffalo, N. Y.; G. C. Fehrman, manager, 755 Ellicott square.

February 5-17—Annual exhibit, St. Louis; F. W. Payne, manager, St. Louis, Mo. Pleasure cars, 5-10; commercials, 12-17.

February 10-17.—Show at Atlanta, Ga., of Atlanta Automobile and Accessory Dealers' Association; Homer C. George, manager.

February 12-17—Show at Troy, N. Y.

February 12-17—Show at Kansas City, Mo.; Wallace J. Terry, manager, 302 Long building, Kansas City, Mo.

February 12-17—Show at St. Paul; St. Paul Motor Car Dealers' Association; W. R. Wilmot, manager.

February 12-17—Show at Ottawa, Canada; Ottawa Valley Motor Car Association.

February 12-19—Dayton, O., show; Elmer C. Redelle, manager, Dayton, O.

February 14-17—Show at Grand Rapids, Mich.

February 17-24—Cleveland show; Cleveland Automobile Show Co., F. H. Caley, manager, Cleveland, O.

February 17-24—Pittsburgh show; Pittsburgh Automobile Show Association, T. I. Cochran, manager, Pittsburgh, Pa.

February 17-24—Show at Newark, N. J.; New Jersey Automobile Exhibition Co.

February 17-24—Minneapolis show; Minneapolis Automobile Show Association; H. E. Pence, manager, Minneapolis, Minn.

February 19-24—Show at Hartford, Conn.; Automobile Club of Hartford.

February 19-24—Seventh annual show of Omaha Automobile Association, C. G. Powell, manager, Omaha, Neb.

February 19-25—Annual pleasure car show; Cincinnati Automobile Dealers' Association, E. A. Kruse, secretary, Cincinnati, O.

February 20-24—Show at Binghamton; Automobile Dealers' Association; R. W. Whipple, secretary, Binghamton, N. Y.

February 20-28—Annual show, Baltimore, Md.; Baltimore Automobile Dealers' Association.

February 21-24—Fifth annual show; Louisville Automobile Dealers' Association, Louisville, Ky.

February 21-28—Toronto show; Toronto Automobile Trade Association; F. I. Fox, secretary, Toronto, Canada.

February 20-28—Annual show, Baltimore, Md.

February 24-March 2—Annual show; Brooklyn Motor Vehicle Dealers' Association, Brooklyn, N. Y.

February 26-29—Annual commercial exhibit; Cincinnati Automobile Dealers' Association, E. A. Krause, secretary, Cincinnati, Ohio.

February 26-March 2—Show at Paterson, N. J.; Paterson Automobile Trade Association.

February 26-March 2—Second annual show Elmira Automobile Club, L. Blumenstein, manager, Elmira, N. Y.

February 26-March 2.—Show at Sioux City, Ia., of Sioux City Automobile Dealers' Association.

February 26-March 3.—Mississippi Valley show, Quincy Automobile Club, Quincy, Ill.; Harry F. Hofer, director.

February 28-March 2—Annual Davenport show; Woodworth Clum, manager, Commercial Club building, Davenport, Ia.

March—Show at Norfolk, Va.

March 2-9—Pleasure car show, Boston; C. I. Campbell, manager.

March 4-9—Show at Des Moines; C. G. Van Vliet, secretary, Des Moines, Ia.

March 4-9—Show at Denver; B. G. Ohlander, manager, Denver, Colo.

March 6-9—Advertisers' motor show, Tiffin, O.

March 11-16—Show at Cedar Rapids, Ia.; M. P. Beck, manager.

March 13-20—Show of Boston Commercial Motor Vehicle Dealers' Association, Mechanics' building, Boston; C. I. Campbell, manager.

March 12-16—Show at Syracuse, N. Y.; Syracuse Automobile Trade Association; Syracuse, N. Y.

Among the Makers and Dealers

NEW PLANT OF K-W IGNITION CO. AT CLEVELAND, O.

CLEVELAND Agents Entertained—Twenty-five Overland agents from central Iowa met in Des Moines Monday as the guests of the Riddell Auto Co., agent for the company.

Case Factory Busy—The motor car factories of the J. I. Case Threshing Machine Co. at Racine, Wis., were operated overtime for 2 weeks or more prior to Christmas in order to catch up with the scheduled production of Case cars. The line of show cars is now being completed.

Canadian Merger—A merger of considerable importance has just taken place in Quebec. P. T. Legare, dealing in farming implements, pianos, carriages, etc., has become the Legare-Gadbois Automobile Co., Limited, with a capital of $100,000. P. T. Legare will be the president of the new concern, with W. Fortier vice-president, and Mr. Gadbois general manager. The company has secured the agencies for the Imperial, the Warren-Detroit, the Mitchell, Cole, E-M-F and Flanders.

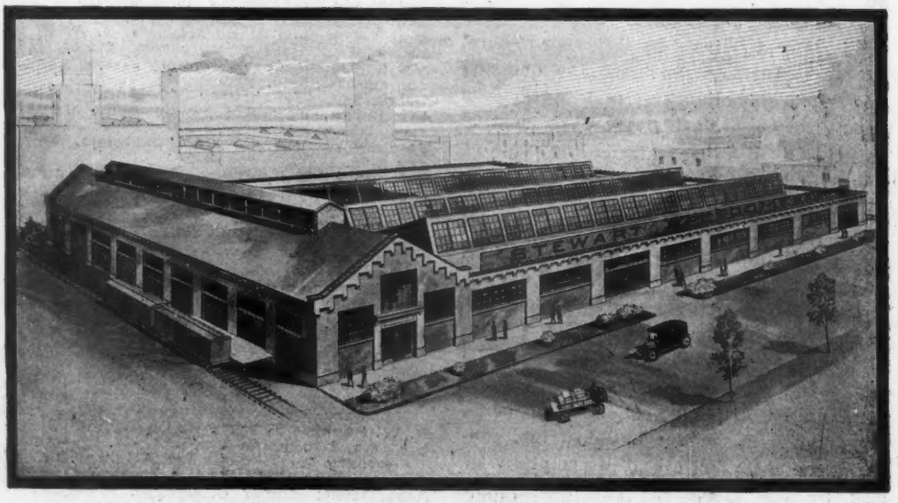
Studebaker Gets Port Huron Plant—The Studebaker Corporation has come into actual possession of the factory at Port Huron, Mich., now known as plant No. 2, where for the past 5 years rear axles for the E-M-F and Flanders cars have been manufactured, together with eleven lots. The property originally was donated to the Northern Motor Car Co., which was one of the companies that were merged to form the E-M-F, on the condition that it be used for the manufacture of motor cars or parts. When the plant had been occupied 5 years the Port Huron chamber of commerce was to turn over the deeds, provided the firm occupying it had paid out $200,000 in wages. The time limit expired several days ago, and the company having fulfilled the other conditions there was nothing for the chamber of commerce to do but turn over the deeds, which it did cheerfully. The plant now employs 500 men and has been one of the main industries of the Tunnel city for some time.

Remy's New Nickel-Plating Plant—An accompanying illustration shows the recently completed building of the Remy Electric Co., of Anderson, Ind., which will be used for the new nickel-plating plant. The building has 6,500 square feet of floor space and the plant will have a daily capacity of more than 1,000,000 nickeled parts. Beginning January 1 all small parts of the Remy magnetos and other Remy products will be nickel-plated, doing away with all brass finishings. The latest method of mechanical plating will be employed and all work will be electrically cleaned, obviating the old method of having the parts scrubbed. This is the third new building to be erected by the Remy company since the new owners took over the concern 8 months ago.

Fire in Detroit—Fire of unknown origin did $1,000 worth of damage at the plant of the Detroit Auto Brass and Machinery Co. on Willis avenue, east, December 19, and all the employes are temporarily out. One entire side of the building was destroyed. Defective wiring is thought to have caused the blaze.

English Expert for Remy—William O. Kennington, of London, England, has accepted the position of assistant chief engineer with the Remy Electric Co., at Anderson, Ind. Mr. Kennington is a graduate of Central Technical College of London, England, and was for a time assistant chief engineer of the Dudley central public service station of London. For 4 years Mr. Kennington was technical manager of the Simms Magneto Co. of London.

Big Foreign Shipments—Loaded with motor cars until it was impossible to get another aboard, the Australian steamer Schoenfels sailed from New York December 20 for Adelaide, South Australia, carrying the largest single cargo of motor cars ever shipped abroad by an American motor car manufacturer, and leaving a big overload on the dock to follow on the next steamer. All the cars were Maxwells, shipped by the United Motor Export Co., the foreign division of the United States Motor Co. They were sold to the Farmers' and Producers' Supply Co., one of the largest companies of its kind in Australia. Forty cars in one shipment were demanded by the cable order and this demand was in addition to an ordinary shipment of thirty-five Maxwells which had been previously put aboard the steamship,



SHOWING ADDITION TO STEWART SPEEDOMETER FACTORY, CHICAGO

ELMORE AND WAVERLEY ELECTRIC AGENCY, DETROIT

to say nothing of the usual export shipments of Columbias, Stoddard-Daytons and Brush runabouts. Regular shipments are being made to nearly every country on the map. The distribution of shipments by the last few steamers showed cars for Japan, Manila, New Zealand, South Africa, Montevideo, Buenos Ayres, Para, Brazil, Gautemala and Santiago de Chile.

Chalmers' Christmas Present—Employes of the Chalmers factory had material evidence of the company's prosperity in the form of an extra week's pay, which was handed them Friday noon as a Christmas remembrance. Every factory hand who had been in the company's employ for 6 months or more and every member of the office force who had been with the concern a year or longer was a beneficiary in this distribution of Yuletide cheer. The Hudson also took a hand in the Christmas giving, providing seventeen poor families with substantial dinners and all the clothing that was needed.

Canadian Trade Election—At the annual meeting and banquet of the Winnipeg Motor Trades Association of Winnipeg, Canada, the following were re-elected by acclamation as officers for 1912: President, F. E. H. Lake, Russell Motor Car Co.; vice-president, W. C. Power, McLaughlin Carriage Co.; treasurer, G. A. Malcolmson, Ford Motor Co.; secretary, A. C. Emmett. Fifty-two members and guests were present at the banquet, among them being Mayor-elect R. D. Waugh, who dealt strongly with the good roads movement, now becoming of general interest in Manitoba. A feature of interest was an illustrated review of the motor business in western Canada since its inception in 1901, by Secretary Emmett, who organized the first racing and touring events in Canada, and who has taken a leading part on these lines ever since. Membership in the association has increased to forty-eight, and the treasurer's report showed a strong financial condition. Every effort is being made to arrange a motor show for February, but difficulty is being met in securing a building large enough for the purpose. The formation of a National Motor Trades Association, which was first advocated by the Winnipeg association, is being proceeded with, and likely will be an accomplished fact early in 1912.

Edmond Takes Carbureter Agency—The new Miller carbureter, which is now manufactured in Los Angeles, Cal., will now be made in the east as soon as the factory is completed at Detroit, Mich. The company has secured E. J. Edmond, of 1783 Broadway, New York city, to handle its carbureter for the eastern states.

New Chicago Venture—A new corporation has been formed under the name of the Atlas Specialty Mfg. Co., capitalized at $10,000, in the state of Illinois, with a factory located at 557-563 West Jackson boulevard, Chicago, for the manufacture of fabric specialties. The officers of this new concern are Caesar J. Wollheim, president; John E. McAuley, vice-president, and Howard H. Leopold, secretary and treasurer. This new concern has absorbed the Atlas Motorcycle Specialty Co., of the same city, and has enlarged its factory and equipment.

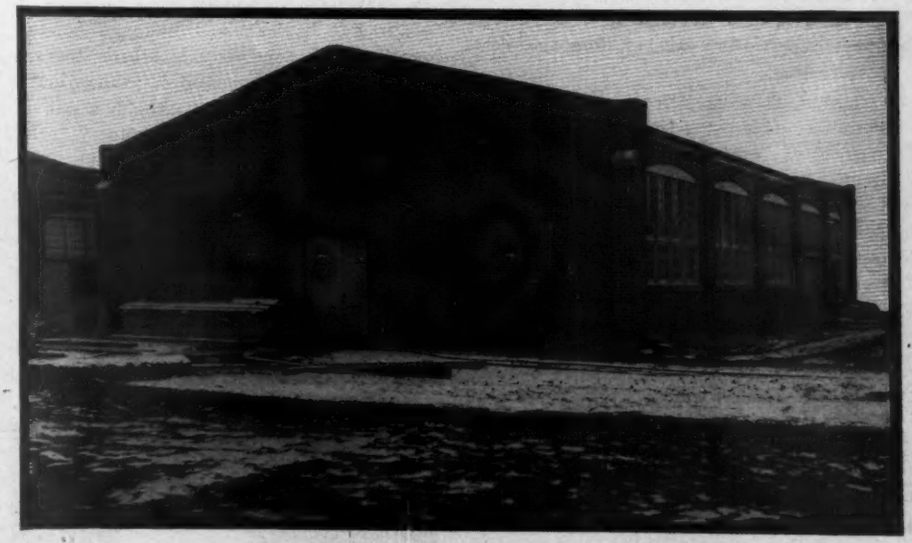
Invention Show Scheduled — An inventions show is scheduled to be held in the Grand Central palace, New York, April 13-20. The idea is to bring the inventors together to show their ideas and possibly interest capital in their patents.

Wilkes-Barre on Show List — Fifteen dealers have formed the Automobile Dealers' Association of Wilkes-Barre, Pa. In addition to the usual matters of trade interests, the association purposes to conduct the second annual Wilkes-Barre show, the week of February 5-10, inclusive.

Getting Acquainted — The Spicer Mfg. Co., of Plainfield, N. J., has inaugurated a series of dinners to which its foremen and department heads are invited, at which some authority other lines the company manufactures will address. The idea is to educate the men in the ways and means of other lines.

Addition to Speedometer Plant—The Stewart & Clark Mfg. Co. of Chicago has added to its speedometer plant in the shape of a one-story building, of concrete construction, covering a ground space of about 33,000 square feet and constructed solely as a forge plant for the manufacture of drop forged swivel joints. It will have a complete equipment of oil furnaces and automatic machinery for the manufacture and finishing of these swivel joints.

New K-W Factory—An accompanying illustration shows the new factory of the K-W Ignition Co., 2835 Chester avenue, near East Thirtieth street, Cleveland, O., which has been completed and occupied. The building is fireproof throughout, being of steel construction with reinforced concrete, and is 75 feet wide by 165 feet long, and has over 2 acres of floor space. It is used exclusively for manufacturing K-W magnetos, spark coils, master vibrators and road lighting outfits.



NEW NICKEL-PLATING PLANT OF REMY ELECTRIC CO., ANDERSON, MO.

Brief Business

ATLANTA, GA.—The Disco Starter Co. has opened a branch office on Edgewood avenue.

Manitowoc, Wis.—George Nelson, agent for the Kisselkar, has added the Hupmobile line.

New Haven, Conn. — Knight's Garage, Inc., of this city, have closed for the Velie in New Haven and New London counties.

Dyersville, Ia.—J. Friedman, of this city, has closed contracts for the Continental, Kisselkar and Studebaker lines for 1912.

Spokane, Wash. — Ground is being broken for the new Ford garage in Spokane, which will be located at 1213 Riverside avenue.

Seattle, Wash.—T. M. Jones, of Cle Elum, Wash., is a new dealer to be added to the list of Mitchell distributors, appointed by the Seattle branch.

Boston, Mass.—John Cooper, formerly manager of the New England branch of the Ajax-Greib Rubber Co., is now representing the Endurance Tire and Rubber Co. in this territory.

Manchester, N. H.—The C. R. Sawyer Co., of this city, have just closed with the Velie Boston branch for the sale of Velie pleasure cars and trucks in this section of New Hampshire.

Chicago—The American Electric Co. has opened a permanent downtown sales and show room at 1254 Michigan boulevard, in the New Southern Hotel building, handling a line of electric horns.

Boston, Mass.—Roscoe B. Davis, for several years with the Maxwell branch in Boston and later with some other agencies, has joined the sales force of the Empire Motor Car Co., agent for the Empire and Stutz.

Owosso, Mich.—A deal has been closed by which E. A. Eddy, Sr., and his son, both of Bay City, become owners of the equipment of the defunct Owosso Motor Co. They expect to manufacture the car in Bay City.

Boston, Mass.—W. S. Boice and L. Perrine, the latter formerly of New York, have formed a partnership as the Boice-Perrine Co., and opened a place at 601 Boylston street, where they are handling the Vesta battery line.

Canton, O.—The directors of the Stark Auto Co., which was incorporated recently with a capital of $20,000, have elected W. H. Burgener, president; T. E. Huthe, general manager; Samuel Heaney, shop manager; George Shaffer, vice-president, and George F. Fornes, secretary and treasurer.

Seattle, Wash.—Announcement is made by the Lozier Motor Co. of changes in the distributing agency of the Lozier in Seattle. T. A. Davies, who has represented the Lozier Motor Co. for some time past, becomes the president of the newly organized concern. It is announced to have a capital of $50,000. Temporary quarters have been secured at 1431 Broadway. Negotiations have been made for a large section of property on Broadway and a new building will probably be erected within a short time.

Boston, Mass.—The Henley-Kimball Co., agent for the Hudson, is having a service station constructed in Cambridge.

New Castle, Pa.—The big plant being erected at New Castle by the Penn Motor Car Co., of Pittsburgh, will be completed shortly after the first of the year.

Portland, Ore. — George C. Nichols, who until recently had charge of the Everitt interests in the Portland territory, is now connected with the E-M-F and will look after country agents exclusively.

Springfield, Ore.—The Springfield Autotruck Co. has been organized with a capital stock of $20,000. Welby Stevens, mayor of Springfield, is president, James L. Clark secretary, George W. Perkins treasurer and F. D. Tower manager.

Janesville, Wis.—The Sykes & Davis garage has passed into the hands of the Janesville Auto Co., a new $10,000 corporation formed by local parties to handle the Flanders, E-M-F and Overland lines in Rock county.

Milwaukee, Wis.—Among the new agencies in Milwaukee are: Union, Marx Brothers; Staver-Chicago, Henry Walter; Nyberg, Tuschan Brothers; King, Eustace Brothers; Arthur F. Tiegs, Colby; Gas Power Engineering Co., Premier and Moline; Elmore, Edwin B. Leverenz.

Denver, Colo.—The Overland Auto Co. is finishing off a large display room in its Lincoln street building, and later in the winter probably will abandon the Broadway room. The entire plant, including machine shop, garage, overhauling department, offices and salesrooms, will be housed in the Lincoln street building.

Evansville, Ind.—The Columbia Taxicab Co. has been organized at Evansville, to conduct a taxicab and baggage delivery service. The company has been incorporated with an authorized capitalization of $10,000, the principal stockholders and directors being E. C. Kinkle, Walter Wheeler, A. C. Mathias and H. E. Hulsman.

Akron, O. — The organization of the Auto Appliance Mfg. Co., incorporated recently with a capital of $50,000, was completed by the election of the following officers: J. W. Miller, president; J. A. Swinehart, vice-president; A. Auble Jr., secretary and treasurer and general manager; C. W. Steele, superintendent, and C. C. Welker, sales manager. The company will manufacture starting devices and and a number of other accessories.

Columbus, O.—The Adamson Automobile Co. has contracted with J. Elden Lawrence, of Lancaster, O., to handle the Jackson in Fairfield county.

Omaha, Neb.—The Omaha Cadillac Co. recently occupied its new quarters at 2054-6-8 Farnam street. The showroom and offices are finished in flemish oak, and the floor is mosaic.

Los Angeles, Cal.—The Pathfinder Motor Car Co. is now located in Los Angeles and will handle the New Parry and Speedwell motor cars. It has leased the building at Pico and Hill streets.

Columbus, O. — Sperry & Hoover have taken over the repair business at the Adamson Automobile Co., at 35 West Mound street, while Mr. Adamson will devote his attention to the sale of motor cars.

Boston, Mass.—F. R. Parker, who formerly handled the Elmore in this territory, has signed a contract with the United States Motors Co. to distribute Brush cars throughout New England. He thereby becomes sole New England representative of this line. He has also taken on the Staver-Chicago line for Maine, New Hampshire, Vermont and Massachusetts.

Fond du Lac, Wis.—The new Helmer garage on Fourth street, completed a month ago at a cost of $25,000, has been leased for a long term of years by the Service Motor Co., which has been occupying the Anderson Motor Co. building on West Second street. The Anderson company will resume occupancy of its garage and will carry Paterson, Cole and Brush cars.

New York—New salesrooms have been opened by the Ajax-Grieb Rubber Co., for the sale of its tires in Detroit and Denver. In the Michigan city a move has been made to 507 Woodward avenue, from 745 Woodward avenue. E. J. Trojand is the Detroit manager. In Denver Fred M. Thompson has a bigger store at 1518 Broadway than he used to have at 1529 Cleveland place.

Indianapolis, Ind. — Kimmel Brothers will handle the Cole in addition to the Speedwell. M. H. Hayn, Savannah, Ga., is agent for the Cole. Recently appointed Cole agents in California are F. W. Decker, Red Bluff; E. C. Smitton, Sacramento; Novelty Garage, Stockton, B. E. Gilbert, Watsonville; J. A. Spates, Dixon, and George Remmel, Geyserville; Wood Yerxa, Colusa, and E. A. Levreau, San Bernardino. Ralph P. White, Youngstown, O., will handle the Cole. D. E. Sunderland, Freeport, Ill., is a new Cole car agent.

Announcements

W. R. Holloway, Collins, Miss., is a Cole agent. Robert McCoy has been appointed a Cole agent for Urich, Mo.

Dallas, Tex.—A new Cole distributing point has been established in Dallas under the name of the Southwestern Cole Motor Co.

Cudahy, Wis.—The new office building of the Federal Rubber Mfg. Co. on Layton avenue will be ready for occupancy about January 1. It is two stories high, and of red press brick construction.

Davenport, Ia.—The Oldsmobile Sales Co. is planning a new garage to be ready in the spring, thereby giving the Klemme Auto Co. full possession of the big garage on Brady street which will be completely equipped with machinery.

Lima, O.—Two storerooms located on the east side of South Elizabeth street, between Market street and Spring street, have been leased for motor salesrooms. Henry S. Thurston will occupy one of the rooms as an agent for the Jackson line and G. W. Griffith as agent for the Krit.

Toledo, O.—Ground has been broken this week for a new structure at the corner of Madison avenue and Eleventh street, Toledo, to be occupied by the Blevins salesroom and garage. The building will be of brick, two stories high, and will be 40 feet by 150 feet in dimensions.

New York—The Philadelphia Storage Battery Co. has opened a new office in the American building, Broadway and Columbus circle, in order to facilitate the handling of its business in batteries. The new office is in charge of Walter L. Thompson, the New York representative of the company.

Boston, Mass.—John L. Burkhard has been appointed by the J. S. Harrington Co., agent for the Everitt, as traveling inspector to visit the new agencies and private owners. Mr. Burkhard was formerly in charge of the Everitt service station. His place there is now taken by W. A. Buck.

Spokane, Wash.—In order that he might confine his activity to the outlying districts of the Abbott-Detroit territory, including eastern Washington and northern Idaho, Fred S. Beckwith, of Spokane, has taken in Hilton E. Dunseth as city partner, and will shortly add two more men to his selling staff.

Indianapolis, Ind.—The C. & F. Motor Car Co., which has been organized by Albert Cosby, Fullerton and J. A. Chandler, has opened up a salesroom at 436 Van Ness avenue, San Francisco, and will handle Stutz cars, manufactured by the Ideal Motor Car Co., of Indianapolis. The Pittsburgh Inter-State Co., 5817 Penn avenue, Pittsburgh, Pa., will handle the Stutz and the Warren cars during the coming year.

Wapakoneta, O.—The Hauss & Bitler Co. has taken the agency for the Stoddard-Dayton in that territory.

Atlanta, Ga.—The Premier Motor Mfg. Co. will open a southern service department in Atlanta about January 15. J. E. Levi will be in charge.

Geneseo, Ill.—Glenn Tracy, of Cisco, Ill., has purchased the sales business of Wood, Gorham & Wood, of this city, and will handle the Ford cars in the eastern part of Henry county.

Columbus, O.—The Motor Efficiency Co., of Cleveland, O., has been incorporated with a capital of $10,000, to deal in parts and accessories of all kinds. The incorporators are August W. Kumbas, W. K. Caldwell, Edward Younger, Leonard C. Loomis and F. G. Castle.

Montreal—A disastrous fire occurred during the past week in the quarters of the St. James Motor Service Co. Eight cars were destroyed and others damaged. The loss on the cars, which were fully covered by insurance, is estimated at between $25,000 and $50,000.

Bridgeport, Conn.—Leonard W. Williams, until recently manager of the Oakland branch of the Locomobile Co. of America, has come east to become associated with the advertising department of the Locomobile company. Mr. Williams, prior to his work on the coast, was connected with the Philadelphia branch of the company.

Indianapolis, Ind.—The Delaware garage, of Indianapolis, has started a clearing house for second-hand cars, expecting to hold auction sales at frequent periods. Owners are permitted to leave their cars at the garage for sale, with the understanding no misrepresentations are to be made as to the condition of the machines. A commission is charged for making the sales.

Indianapolis, Ind.—The recently organized Merchants Auto Co. of Indianapolis, has taken over the Delaware garage at 214 North Delaware street and the new Colonnade garage at 9 East Pratt street in that city. The Delaware is to be used for garaging and selling commercial cars and the Colonnade for garaging pleasure cars and for selling the Woods electric and Westcott. E. Frank Brown has recently become general manager of the Merchants' company, succeeding Harvey B. Stout, Jr.

Toronto—The Sharpe Sales Co., Limited, a supply house, has assigned for the benefit of its creditors.

Dallas, Texas—The Remy service station has been established at 212 Lane street by M. A. Price.

Los Angeles, Cal.—The Hupmobile will be sold from the salesrooms of the Tri-State Auto and Supply Co., of Los Angeles.

Toledo, O.—A new concern for Toledo is the Crist Motor Sales Co., under the management of H. H. Crist. The company will handle the Cole.

Denver, Colo.—E. R. Cumbe, agent for the G & J tire and the Rambler, has remodeled his sales and display rooms at 1541 Cleveland place.

Columbus, O.—The Adamson Automobile Co., of 35 West Mound street, has contracted to distribute the Paige-Detroit line for 1912 in Franklin, Delaware, Madison, Pickaway and Union counties.

Columbus, O.—The Ohio-West Virginia Sales Co., of Athens, O., has taken the agency in southeastern Ohio for the Cutting pleasure car and the Garford trucks. F. E. Shattuck is manager of the concern.

Columbus, O.—The Cummins Auto Sales Co., of North Fourth street, has placed the following subagencies in Ohio territory: E. C. Fogle Automobile Co., Cambridge, Elmore; D. S. Spangler, Thornville, Elmore; R. E. Wildermuth Automobile Co., Pleasantville, Krit.

Denver, Colo.—E. W. Swanbrough, western manager for the R. C. Hupp Co., announces the appointment of the following agents in this territory: Browning Brothers, Ogden, Utah; R. C. Tarrant, Sheridan, Wyo.; P. W. Pitman, Las Animas, Colo.; Ideal Motor Co., Pueblo, Colo.

Syracuse, N. Y.—Victor Vernon, president of the American Motor Sales Co., State and Cedar streets, is to handle the Cole in connection with the American. As a result of taking on these two Indianapolis made cars the firm name will be changed to the American Cole Motor Co.

Syracuse, N. Y.—W. R. Shaw has purchased the entire stock held by the Strait estate in the motor firm of Strait & Shaw and assumes sole ownership January 1. He will continue to conduct the business at 225 W. Genesee street. Mr. Shaw and his former partner formerly were in business in Wolcott.

Denver, Colo.—The Overland Auto Co., western distributor for the Willys-Overland Co., has placed the following agents in its territory: Cañon City Auto Co., Cañon City, Colo.; Paul Auto Co., Colorado Springs, Colo.; Tyler Auto Co., Pueblo, Colo.; R. K. Young, Salida, Colo.; William Whalen, E. Las Vegas, N. M.; Monte Vista Motor Car Co., Monte Vista, Colo.;

Fred. W. Roedel, Cheyenne, Wyo.; John H. Walker & Son, Santa Fe, N. M.; Forest Lumber Co., Fort Collins, Colo.

Montreal—Roussea Brothers, 174 St. Antoine street, have again taken on the Cadillac representation for Montreal.

Montreal—The Canadian Equipment Co., Limited, capitalized at $50,000, will continue business at Montreal, dealing in trucks.

Springfield, Ore.—A company has been organized by D. Tower for the manufacture of motor trucks. Local capital has been subscribed and a small factory has been started.

Prairie Du Sac, Wis.—Charles Lehman and J. U. Schmidt have organized what is known as the Prairie Du Sac Auto Co. and is building a fireproof garage on Main street at Prairie Du Sac.

Los Angeles, Cal.—The Hayes Auto Sales Co. has moved into its new quarters at 1225 South Olive street. The concern is now represented by Manager Brotherton. It will handle the Hayes and Krit cars.

Chicago—A. W. Shattuck, formerly manager of the Rambler garage of Milwaukee, has allied himself with the Fulton-Grubb Co., of Chicago, and hereafter will devote his efforts to the promotion of the interests of the new connection.

Boston, Mass.—W. H. Vinal has returned from a trip to York, Pa., where he closed a deal for the agency for Pullman cars in eastern Massachusetts. He will at once assume the management of the Boston Motor Co., which handles the S. G. V. and the de Dion.

Pendleton, Ore.—A new garage and repair shop has been opened in Pendleton under the title of the Oregon Motor Co. Mr. Smith, the Ford agent at La Grande, has plans drawn for a new garage, and a second one will be built immediately after the first of the year in that city.

Columbus, O.—The Hudson Sales Co., of North Fourth street, has closed contracts for the following subagencies: J. R. Armstrong, Lima, Hudson, in Allen, Van Wert, Mercer and Auglaize counties; Walker & Son, Lancaster, American in Fairfield; Pickaway, Ross and Fayette counties.

Dayton, O.—The Apple Electric Co. has equipped its Detroit branch at 1005 Woodward avenue with complete installation and repair shop so that it now is prepared to make installations of its electric lighting systems for motor cars and motor boats and maintain the systems already installed.

Dayton, O.—The Stoddard-Dayton people have decided to centralize its local selling force at the plant and announcement is made of the appointment of Charles Hoffritz as agent. The local agency formerly was in the hands of the Dayton Automobile Co., on West Fourth street. This company will continue in the business and will sell the Winton six and other line, which will be announced later.

Montreal—The Regal Automobile Co. of Montreal, Limited, is the latest aspirant after a share of the motor car business.

Montreal—Harold Cooke, 590 Sherbrooke west, has been appointed agent for Montreal for the sale of the Detroit electric.

Canton, O.—The garage of H. C. Miller, 1522 North Cleveland avenue, Canton, was totally destroyed by fire recently. The damage was more than $10,000.

Dallas, Tex.—The Firestone Tire and Rubber Co. will open a direct factory branch in Dallas January 1. It will be located at 1521 Commerce street and be under the management of P. B. Talbott, a traveling salesman for that company.

Atlanta, Ga.—The States Atlanta Motor Co. has been combined with the United Motor Atlanta Co., under the management of E. S. Horton who has previously had the latter company in charge. The States company has handled the Stoddard-Dayton and the Courier, while the United Motor Atlanta Co. has handled the Maxwell, Columbia and Sampson truck. Neither company will move.

Syracuse, N. Y.—Frank P. Anderson is now the Syracuse agent of the Hupmobile.

Wakerville, Ont.—The Flanders Electric Vehicles of Canada is the name of a newly incorporated company entering the motor field.

Victoria, B. C.—Harry Moore has organized the Moore & Pauline Co. in Victoria and will continue to represent the Flanders and E-M-F cars in this city.

Rock Island, Ill.—The Totten Auto and Supply Co. has taken on the Lozier and Abbott-Detroit cars in addition to its regular lines for 1912, with selling territory in Illinois and Iowa.

Green Bay, Wis.—The firm of Hoberg & Gerard has been dissolved and Jules Gerard will henceforth handle the Rambler line and operate a garage and repair shop in the Green Bay Carriage Co. buildings.

Boston, Mass.—Ralph Coburn, for the past 6 years with the Boston branch of the Maxwell-Briscoe company, has been promoted to be manager of the branch of the Stoddard-Dayton company. Mr. Coburn was sales manager of the Maxwell branch.

Minneapolis, Minn.—The Chase Motor Truck Sales Co., of Minneapolis, Minn., has just taken the agency of the Chase truck. The territory includes nearly the entire state of Minnesota, also North and South Dakota and a small portion of Wisconsin.

Cleveland, O.—The Koepke Motor Sales Co. has been incorporated with a capital stock of $30,000 to operate a garage and repair department. The incorporators are John C. Koepke, Edmund C. Hansel, H. R. Brownlee, Elmer G. Derr and Emma Koepke.

Detroit, Mich.—B. F. Blaney, who has been general sales agent for the United States the past 2 years for the Johnson Service Co., of Milwaukee, has severed his connections with it, and taken up his new position as sales manager for the Havers Motor Car Co., of Port Huron, Mich.

Columbus, O.—The Broadway Motor Car Co., 842 and 844 West Broad street, is the name of a partnership formed by J. F. Morgan and H. F. Kaiser, to handle the Paige-Detroit in Franklin county for 1912 and to do a general garage and repair business. The concern occupies a new building which was erected especially for its use.

Toledo, O.—C. H. Bowersox, of the Bowersox Motor Sales Co., of Bryan, Ohio, will open a salesroom in Toledo for the handling of the Everitt line of cars. The salesrooms at Bryan will be retained, the company operating both places. The western half of the territory controlled by the company will be handled from Bryan, while the Toledo office will take care of the eastern territory.

Recent Incorporations

Ashtabula, O.—High Level Auto Co., capital stock $10,000; to buy and sell motor cars, sundries and supplies; incorporators, J. C. Topper, Earl Gardner, T. P. Fitzgerald, S. F. McDonald and Fred Squires.

Canton, O.—Stark Auto Co., capital stock $20,000; to deal in motor cars, both wholesale and retail and to operate a repair shop; incorporators, W. H. Burgener, Thomas C. Huth, Samuel Haenny, George Shaffer and Harlie E. Ellsworth.

Cleveland, O.—Brocks-Norton Motor Sales Co., capital stock $10,000; to buy and sell motor cars, motor trucks and supplies, as well as operating a repair shop and garage; incorporators, W. K. Stanley, J. W. Brooks, Charles L. Norton, H. N. Pettibone and R. L. A. Lieghley.

Akron, O.—Electric Rubber Reclaiming Co., capital $200,000; to engage in the business of reclaiming vulcanized rubber of all kinds; incorporators, John C. Frank, George H. Ellis, Frank E. Ream, Isaac Laubach and D. F. Felmly.

Toledo, O.—Toledo Auto Delivery Service Co., capital $10,000; to do a business of transporting persons and property by motor cars and other vehicles; incorporators, Charles K. Friedman, Joseph Strauss, Kittie Alexander, Joseph Alexander and Morris Tobias.

Warrensville, O.—Price Motor Car Co., capital stock $200,000; to manufacture and sell motor cars, as well as to do a general machinery and manufacturing business; incorporators, W. P. Kehres, Thomas J. Atkinson, John G. Schultz, E. B. Hecker and J. A. Hecker.

Chicago—Packard Auto Livery Co., capital stock $1,000; conduct garage; incorporators, F. M. Johns, E. A. Zimmerman and Abram L. Myers.

Hattiesburg, Miss.—Southern Automobile and Machine Co., capital stock $50,000.

Cleveland—Koepke Motor Sales Co., capital stock $30,000; to deal in motor cars; incorporators, J. C. Koepke, E. C. Hasel, E. Koepke, H. P. Brownlee and E. G. Derr.

Buffalo, N. Y.—Frontier Motor Car Co., capital stock $5,000; incorporators, Elmer Harris, W. Graham and V. L. Hagstrom.

Hannibal, Mo.—Long Silent Motor Co., capital stock $12,000; incorporators, E. C. Long, Frank R. Tate and T. Moreno.

Greensboro, N. C.—Ford Garage and Sales Co., capital stock $10,000; incorporators, R. L. Markham, W. H. McGlamery and W. M. Combes.

Wilmington, Del.—Williams Steel Wheel, Rim and Tire Co., capital stock $1,000,000; incorporators, W. E. Williams, H. L. Drullard and J. H. Thain.

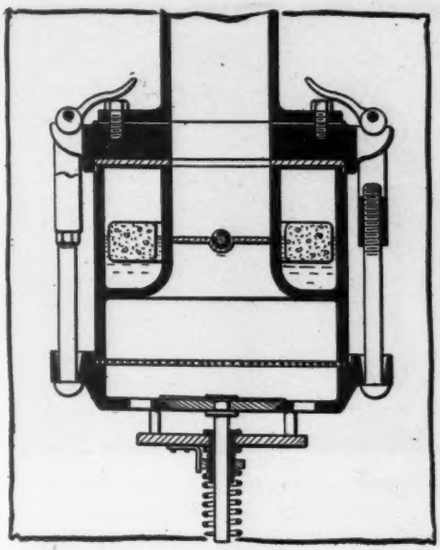
Current Motor Car Patents

SMITH Priming Device—No. 1,011,257, dated December 12; to Charles H. Smith, Rockford, Ill.—This patent applies to an apparatus for priming explosive engines comprising a fuel supply tank, pipes conducting fuel therefrom to each of the engine cylinders, a valve controlling the flow of fuel from this tank, the valve comprising a hollow rotary valve member adapted to first receive a definite quantity of fuel, and then discharge this quantity at each operation. There also are valves controlling the entrance of fuel into the engine cylinders and means for operating all the valves.

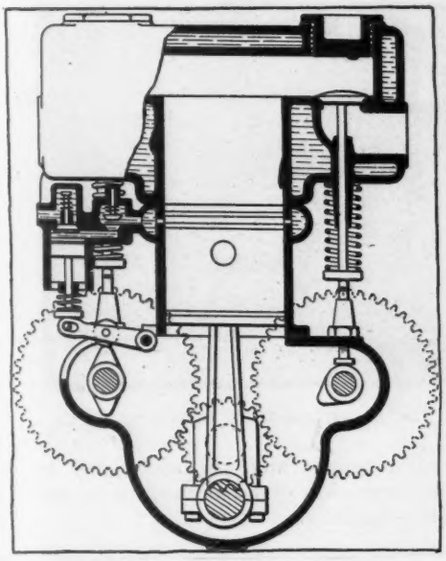
Torma & Orth Headlight Control—No. 1,011,278, dated December 12; to Joseph Torma and John S. Orth, East Pittsburgh, Pa.—This patent relates to a headlight-controlling device having in combination a lamp support mounted for turning movement, a rockshaft, connection between the rockshaft and lamp support arranged to turn the latter when the shaft is rocked, a clip arranged for attachment to an element of the steering gear of a vehicle, an arm mounted for free swinging movement upon the rockshaft, a link connecting the arm and clip, and a latch carried by the arm and engagable with the shaft to hold the shaft for movement with the arm, as shown in the illustration.

Zisch Carbureter—No. 1,010,714, dated December 5, to George J. Zisch, Newark, N. J.—As shown herewith, this patent applies to a carbureter comprising a casing, a mixing chamber therein for air and gasoline or the like, a valve controlling the passage of air and gas to the chamber, a rotary gasoline discharge pipe in the chamber, valve mechanism for admitting a variable supply of gasoline to the pipe, and means for affecting the co-operative action of the valve, discharge pipe and valve mechanism.

Allen & Bowler Wheel Puller—No. 1,011,140, dated December 12; to James B. Allen and William Bowler, Santiago, Cal.—This patent pertains to a wheel-puller for motor vehicles having a sleeve adapted to engage with a wheel hub, an oscillating member arranged concentrically upon the sleeve, having a transverse opening, a ratchet-nut arranged in this opening, reversible pawls pivotally mounted in this opening and engaging with the nut, a flange on the sleeve engaging with the oscillating member, locking pins connecting the oscillating member and sleeve, gears upon the locking pins to hold them in an operative position, a bolt actuated by the ratchet-nut slidably and concentrically mounted in the sleeve and oscillating member, and detachable handles for operating the oscillating member independently of the sleeve and thereby imparting an advancing motion to the slidable bolt.



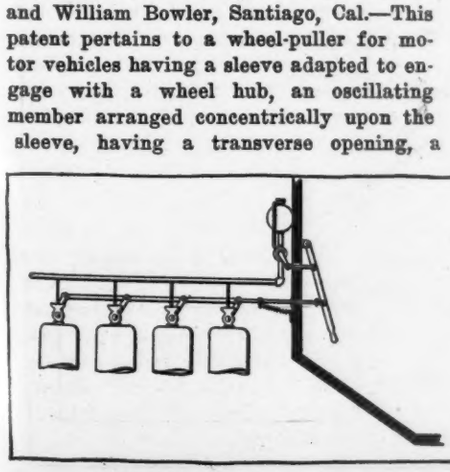
THE ZISCH CARBURETER



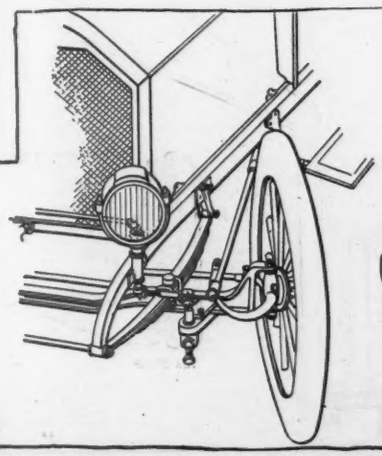
JUDSON LUBRICATING SYSTEM

Douglass Wheel Hub Design—No. 1,011,591, dated December 12; to William Henry Douglass, Belleville, N. J.—This patent covers a motor vehicle provided with a driving and steering wheel having a hub and a rim, a driving axle, a universal joint connecting the driving axle with the hub, a steering knuckle intermediate to the hub and rim, a steering knuckle being approximately ring-shaped and formed in sections, means for securing the sections of the knuckle together, the said sections each having an annular inwardly extending flange approximately at the center thereof, ball bearings interposed between these flanges of the sections of the knuckle and the outer side of the hub, and a supporting member having arms provided with trunnions engaging the knuckle at the top and bottom thereof.

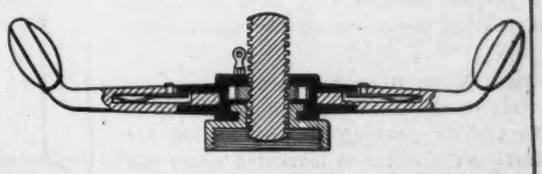
Judson Lubricating System—No. 1,011,626, dated December 12; to Champion H. Judson, Dobbs Ferry, N. Y.—The lubricating system to which this patent applies comprises a reciprocating member, a structure surrounding this member having oil inlet passages through the walls thereof, an oil manifold surrounding passages adjustable in the direction of reciprocation, and means for supplying oil to the manifold. The accompanying illustration of this system is shown applied to a standard type of internal combustion motor such as is used in motor cars, the manifold surrounding the cylinder and the cylinder walls having passages through which oil is admitted between the piston and cylinder walls.



SMITH PRIMING DEVICE



TORMA & ORTH HEADLIGHT CONTROL



ALLEN & BOWLER WHEEL-PULLER

Development Briefs

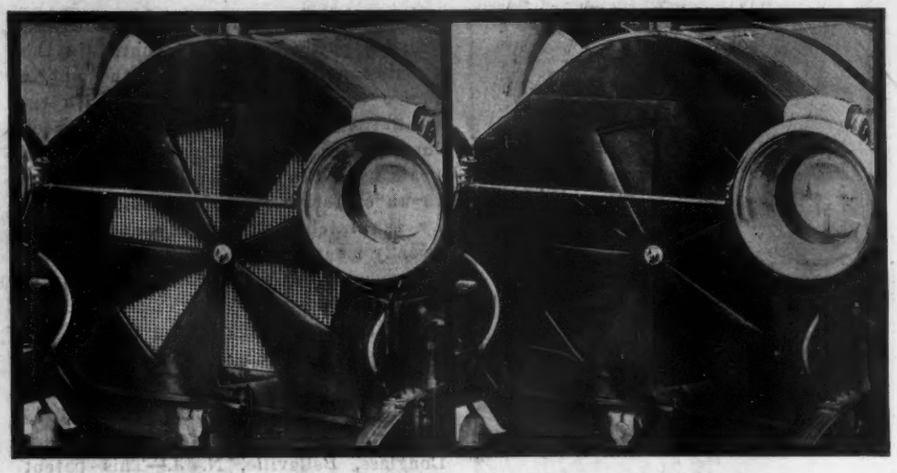


FIG. 1—ANTIDAM RADIATOR COVER IN OPEN AND CLOSED POSITIONS

Antidam Radiator Cover

A COVER to keep the radiator warm has recently appeared under the name of the Antidam heat retaining radiator cover. It is a neat, simple device that its manufacturers claim will do a multitude of things for the motorist's comfort.

The Antidam Manufacturing Co., has been incorporated under the laws of Indiana to manufacture the article at Indianapolis. George Bott, will be secretary, treasurer and general manager of the company. Factory quarters have been engaged and the manufacture of the cover commenced.

The new article consists of a heavy piece of pantasote cut out to fit the radiator of the car. The top of the cover is held in position by being slipped over the radiator cap. The bottom is held in position by being strapped to the starting crank. Under the pantasote sheet metal is used to give the cover durability and cause it to properly fit the radiator closely, and not be affected by the wind. The diaphram has six openings affording instantaneous adjustment. The openings can be closed entirely, opened partially or to their full extent at the will of the motorist. This is to keep the engine from being cooled too much by the air. It is illustrated in Fig. 1.

Such devices cause the water in the radiator to retain its heat, thereby making it easy to crank the car in winter. For owners who store their cars over night in private garages that have no means of heating the cover should prove beneficial.

Wilson Motor Starter

One of the more promising additions to the rapidly growing list of devices for starting the motor is marketed under the name of the Never Miss motor starter, by the Wilson Motor Starter Co., of Franklin, Pa. The starter is operated by compressed air, but unlike most of this type, the air is not introduced into the cylinder, that is, does not operate directly on the

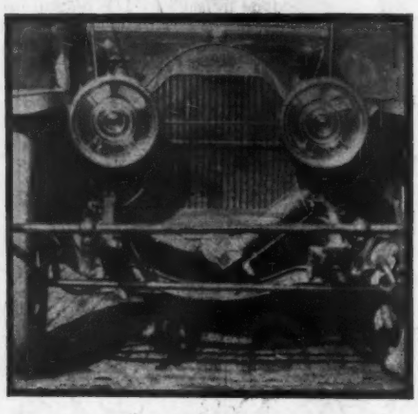


FIG. 2—NEVER MISS MOTOR-STARTER

piston; consequently, the motor may be started on dead center as easily as in any other condition.

A rack on the end of a piston which is arranged to be shot rapidly forward by compressed air engages with a gear on the crankshaft. Pressing a pedal or button at the driver's seat allows the air to enter the cylinder of the starter, moving outward and turning the engine over one and one-half times. In case the motor does not take up its cycle at the first start, the operation may be repeated. A small compound air pump, driven by the motor, keeps a storage tank filled with air at a pressure of 300 pounds per square inch. This is said to be sufficient to start the motor of a large car thirty-five times, or a small car forty times. The starter is made in two sizes, the smaller with a 1¾-inch cylinder, and the larger with a cylinder 3 inches in diameter. Rack and gear are arranged so that in case of a back-kick no motion is communicated to the former by the unexpected impulse.

The operating cylinder is located in what is probably the most accessible position, right in front of the radiator, taking the place of the starting crank. The illustration, Fig. 2, shows its appearance on a 60-horsepower car. It seems that the device will live up to its name, for, according to the reports of a recent test conducted by the manufacturers, the outfit gave 22,000 starts without one miss, it is asserted.

In Fig. 3 is illustrated the general arrangement of the starting device. The two features of special interest are the dash control valve and the method of releasing the air from the rack cylinder. The former is designed to prevent the slightest leakage of air, and tests have shown that the car can stand for weeks with tank fully charged without noticeable loss. The device is intended particularly for large cars, as its cost will prevent very wide application to cheap cars.

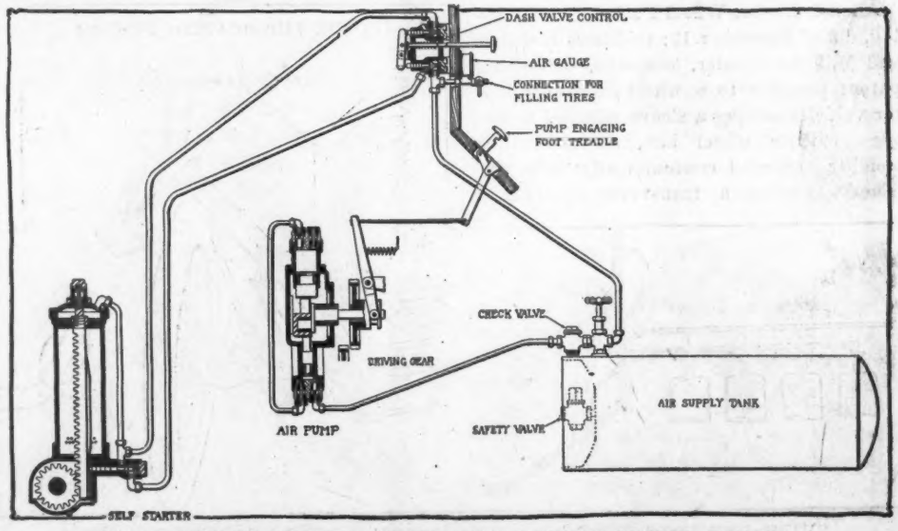


FIG. 3—ARRANGEMENT OF NEVER MISS MOTOR-STARTING DEVICE